



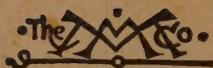
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**BRAZIL
AFTER A CENTURY
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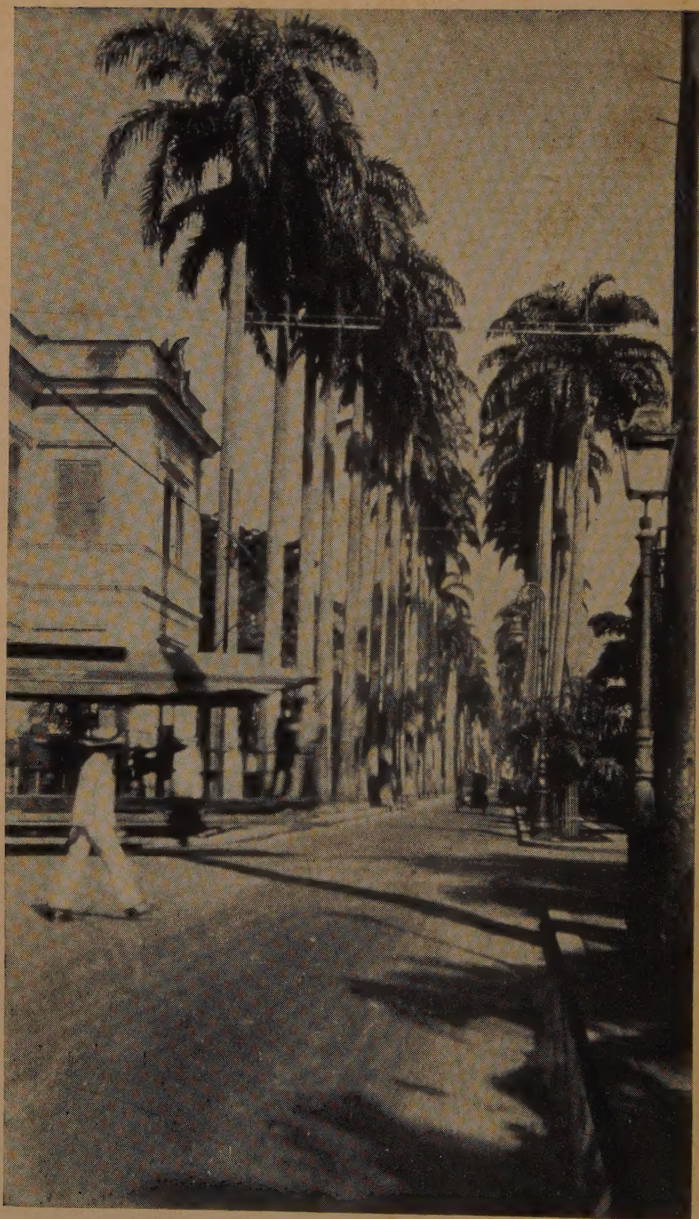


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Rua Paysandú—Rio de Janeiro.

BRAZIL AFTER A CENTURY OF INDEPENDENCE

BY

HERMAN G. JAMES

*Author of The Constitutional System of Brazil, The Republics
of Latin America (jointly with P. A. MARTIN), Etc.*

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TO MY FATHER
EDMUND J. JAMES
IN ENDURING GRATITUDE

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PREFACE

Not since the overthrow of the Empire in 1889 and the establishment of a Federal Republic in Brazil on the model of the United States of America has the interest aroused in that country among North Americans been as great as within the last few years.

One reason for this aroused interest was the entry of Brazil into the World War on the side of the Allied Powers six months after the United States of America entered the conflict. Another reason was the enormous impetus given to our foreign trade with Brazil as a result of the war conditions. Still another reason was the marked improvement in travel facilities between the two countries instituted by the United States Shipping Board. And finally, the World's Fair at Rio de Janeiro, held in 1922 in commemoration of the hundred years' anniversary of Brazilian independence, attracted a great deal of notice in the United States and drew many visitors to Brazil.

But the information available regarding Brazil, in English, has not kept pace with this awakened interest. The American reader looks in vain for a comprehensive treatment of the country in which he can find information on history, government, natural products, agriculture, population, industries, and a number of other important phases of the nation's life with which the well informed reader will want to be acquainted.

Fortunately the centennial celebration was the occasion for the publication in Portuguese of a mass of

information about the country which had never been put into readily accessible form even for the readers of Portuguese. The census of 1920, by far the most complete census ever undertaken in Brazil, added its quota of essential information, and official and individual publications added a great deal more. But all of this vast material is a closed book so far as the American is concerned, for not only is it difficult to secure in the United States, but, if obtainable, it is in an unfamiliar tongue.

The author was fortunate in being privileged to spend more than a year in Brazil during the celebration of the centenary and to have all these sources of information readily accessible to supplement his personal observations and impressions. It seemed, therefore, that the task of preparing a fairly comprehensive work in English was demanded by the interest in the subject of Brazil in the United States, was indicated by the rounding out of a hundred years of independence by that country, and was facilitated by the mass of hitherto unavailable information prepared in anticipation and celebration of that significant anniversary.

That the author has undertaken this task is due primarily to the very lasting interest he himself developed in Brazil during his sojourn there. But none can appreciate more clearly than he the great difficulties inherent in such an undertaking. Its accomplishment is bound to fall far short of what the author had fondly hoped for in anticipation, and more than likely it will fall short of what the individual reader may have hoped to find in the book. If, however, the present work with all its shortcomings will serve to give the American or English reader a somewhat clearer conception of Brazil than was his before, and above all if

it will stimulate the desire to know more about this vast country and, if possible, to inspect its charms in person, the author will feel that his work has not been in vain.

In the difficult matter of Portuguese accents, regarding which there is no unanimity among Brazilian writers themselves, it has seemed best to retain the acute accent in the English rendition, and to ignore the circumflex. The former is a tonic accent and helps to give the English reader an idea of the pronunciation. The latter gives no such aid and serves only to make the names and nouns appear needlessly strange and unfamiliar.

The author wishes to acknowledge the kindness of Professor Percy A. Martin of Stanford University in reading the proofs of the historical chapters in the book, and of Mr. Charles A. Timm of the Department of Government of the University of Texas, in preparing the index.

HERMAN G. JAMES.

AUSTIN, TEXAS,
1925.



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**BRAZIL
AFTER A CENTURY
OF
INDEPENDENCE**

BRAZIL AFTER A CENTURY OF INDEPENDENCE

CHAPTER I

PHYSIOGRAPHY

Extent

FROM the point of view of territorial extent Brazil ranks as one of the five great countries of the world. Only Russia, China, Canada, and the United States of America exceed her in that respect, and if we should consider only the area of continental United States exclusive of Alaska, Brazil moves up to fourth place. It covers about three-sevenths of the entire South American continent, that is, it is nearly equal in extent to all the rest of the countries of South America. Compared with the area of France, taking that country as an example of a good-sized European state, the territorial extent of Brazil is found to be fifteen times as great.

These comparisons serve to furnish a conception of the vast territory included within Brazil, estimated at one-fifteenth of the total land area of the world. But when it comes to expressing the area of Brazil in actual figures, absolute accuracy cannot be attained. This is due to the fact that there has as yet not been undertaken a complete survey of the whole country, and to the further fact that the exact boundaries of Brazil

with the neighboring countries have not even been definitely traced. Recent authoritative estimates have varied from 7,950,000 square kilometers to 8,849,136 square kilometers. But a special commission appointed to prepare accurate geographical statistics for Brazil in connection with the celebration of the first centenary of independence in 1922, after the most careful investigations possible, arrived at the figure 8,511,189 square kilometers (3,286,173 square miles, calculating a square mile at 2.59 square kilometers). This estimate is taken as official in the volume issued in 1922 by the Director General of Statistics on the Federal Census of 1920, and may be accepted as the most nearly accurate of any of the varying estimates so far made.

A glance at the map will show Brazil as approximating the shape of an irregular triangle, with one side running almost due southwest from Cape São Roque at the eastern tip, another running a little north of west from the same point, and the third running in a southeasterly direction from the bulge made by the upper Amazon basin in the northwest. Its shape has been described as approximating that of a ham, though the similarity to that familiar article is not nearly as pronounced as it is in the case of the South American continent as a whole.

The extreme points of the country, north and south, are situated respectively at latitudes North $5^{\circ} 10'$, at the source of the River Cotingo on the south slope of Mount Roraima, and South $33^{\circ} 45'$, where the little Chuy or Chui empties into the Atlantic on the border between Brazil and Uruguay. East and west the extreme points are respectively at longitude west of Greenwich $34^{\circ} 45'$, on the eastern coast near Recife in

the state of Pernambuco, and $74^{\circ} 8' 59''$ at the chief source of the River Javary or Javari on the border between Brazil and Peru. Even these specific points are not defined with absolute accuracy, but the extreme variations in the figures given do not exceed a third of a degree of longitude and one minute of latitude, so that the above data, officially adopted in the census volume of 1922, are sufficiently accurate for all practical purposes. It is curious to note, however, that there is not yet entire agreement as to which of three points on the eastern extremity of the Atlantic coast is the easternmost extremity of the Brazilian mainland, a matter which would seem to be of relative simplicity to settle.

In its north and south extent, totaling 4,307 kilometers (2,675 miles, calculating a mile at 1.61 kilometers), Brazil stretches from the north tropical zone well into the south temperate zone, but approximately fourteen-fifteenths of the entire extent of the country are located in the Tropics, as the country has narrowed down almost to its smallest width by the time it reaches the Tropic of Capricorn. In its location with reference to the Equator, therefore, Brazil corresponds remarkably closely to that portion of Africa extending south from the northern boundary of the Belgian Congo.

From east to west, Brazil extends a distance of 4,336 kilometers (2,693 miles), just 18 miles more than its north to south extent. The westernmost point of the country is due south of New York City, while the easternmost extremity is almost due south of the Azores. The whole of Brazil lies, therefore, to the east of our Atlantic seaboard, with the result that the water route from Brazil to the Strait of Gibraltar and the countries of the Mediterranean, lying forty-five degrees

north of the nearest important port of Brazil, is almost exactly the same as from New York to Gibraltar, lying almost due east. Moreover, and this is of greater significance, the water route from Brazil to the countries of the Mediterranean is less than from Brazil to New York, in consequence of the pronounced eastern thrust of the northeastern hump of Brazil that has to be rounded by all ships plying between the populous portion of Brazil and the United States.

Coast Line

Another fact of prime importance in the physiography of Brazil is likewise evident from a glance at the map, and that fact is the enormous extent of the coast line of that country on the Atlantic Ocean. From Cape Orange at the mouth of the Oyapoc River on the boundary of Brazil with French Guiana to the mouth of the Chuy on the boundary with Uruguay, the coast line extends 5,864 kilometers (3,642 miles), not counting the bays and inlets. This extension is divided into two main but unequal portions at Cape Calcanhar, the extreme northeastern point of Brazil, a little north of the well-known Cape São Roque. The upper portion faces northeast along a stretch of 2,057 kilometers (1,278 miles) while the lower portion, making a right angle with the upper portion, faces southeast along a front of some 3,807 kilometers (2,364 miles).

In addition to this primary division, according to the general direction of the coast line, there are other main divisions based in the character of the littoral, which presents marked variations in its long extent.

From Cape Orange at the extreme north to Cape do Norte, some 350 miles to the southsoutheast, the shore line is low, clayey, broken by numerous small streams

connecting small lagoons, and covered with mango swamps. There are no harbors in this stretch, only one major indentation, and one island of importance, Maraca.

At Cape do Norte, or at least at Ponta Grossa some sixteen miles to the south, is the northern extremity of the estuary of the Amazon River. Measured from Ponta Grossa to Point Tijoca on the south bank of the River Pará is a distance of over 185 miles, and this marks the real width of the mouths of the Amazon, for the so-called Pará River is no more than an outlet of the former, divided into two main branches by the enormous island of Marajó. This island, said to be the largest fluvial island in the world with its area of 13,600 square miles, bigger, therefore, than the whole of Holland, is only one of the hundreds of islands that have been formed by the Amazon at its entrance into the Atlantic. The two other principal islands at the mouth of the Amazon proper, Caviana and Mexiana, divide the approach from the sea into three channels, North, Perigoso or Dangerous Channel, and South Channel, respectively. All of this portion of the coast is practically at sea level, marked by numerous dunes, and subject to inundation by the pronounced tides, which make themselves felt for a distance of nearly 500 miles up the Amazon. Belém, or Pará, the chief port of this region and one of the principal ports of Brazil, is only sixty feet above sea level, though situated more than a hundred miles from the ocean, on the so-called Pará River.

From Point Tijoca, at the southeastern end of the estuary of the Amazon, to Point Gurupy, some 200 miles, the coast extends nearly east, is still low-lying and flat, but more pronounced than to the north of the

Amazon, and covered with dunes. It is broken only by a few minor inlets and an insignificant island or two.

From Point Gurupy the coast line again takes a southeasterly direction to Point Itacolomy, at the eastern entrance to the Bay of São Marcos, a distance of 280 miles. Here again the low sandy shores are in general ill-defined, shifting with each tide, and covered with marsh vegetation. A few low hills begin to make their appearance, however, and several bays constitute major indentations. Of the numerous low-lying islands that dot this portion of the shore, the only one of any size is the island of São João off the entrance to the Bay of Turyassú.

From Point Itacolomy due east to the low sandy island of Santa Anna is only 55 miles in a straight line, but following the contours of the two large bays of São Marcos and São José, separated by the island of São Luiz, the distance is nearly 150 miles. Two good-sized rivers, the Mearim and the Itapicurú, here empty into the ocean on opposite sides of São Luiz Island. This low-lying alluvial island, separated from the mainland by the narrow Mosquito Strait, is one of the major islands of Brazil, with an area of nearly 500 square miles. On it is located the city of the same name, capital of the state of Maranhão, and a port of some importance. But the tremendous tides, attaining at times a maximum of 26 feet above mean sea level, make navigation both difficult and dangerous.

Continuing east from Santa Anna Island the shore is low and barren, covered with white sands that have given this region as far as Tutoya, somewhat over 100 miles, the picturesque name of Lenções or "sheets." Only one indentation occurs in this stretch, that formed by the mouth of the River Preguiça or Lazy River. At

the Barra de Tutoya, the westernmost point of the estuary of the Parnahyba, begin a group of numerous small alluvial islands and sand bars obstructing the mouth of that river. The internal contour of this estuary, extending to the Barra do Igarassú at the eastern end, is nearly 60 miles in extent, but the two small ports at the opposite extremities are of little value to shipping because of the strong currents, the high tides, and the constant fogs during nine months of the year.

From the mouth of the Parnahyba, the last great river of the equatorial region of Brazil, to Point Tapagé 190 miles distant, the coast line goes almost due east, low and sandy, dotted with lagoons and traversed by a few small streams, but otherwise unrelieved by bays or islands. But here for the first time the outposts of the great interior plateau approach to within sight of the coast, which elevations, though receding again to a greater distance for various stretches, soon become one of the outstanding features of the Brazilian coast line for two thousand miles or more.

For a distance of nearly 400 miles from Point Tapagé to Point Touros the coast line continues south-east and east with much the same aspects. Low sandy shores covered with almost unbroken shifting sand dunes, barren, and devoid of harbors and important islands, extend as far as Mossoro, the point at which the coast again follows a pronounced easterly direction. Few streams break the shore line, and Fortaleza, capital of the state of Ceará and one of the principal ports of Brazil, offers little more than an open roadstead to shipping. For a small stretch along the northern coast of the state of Rio Grande do Norte some vegetation appears, notably cocoa palms, only to dis-

appear again in the endless sterile sand dunes, here exhibiting rich salt deposits, relieved now and again with some more pronounced elevations.

A curious characteristic of this easternmost stretch of the north coast of Brazil is the fact that in general the right banks of the mouths of the streams are marked by small barren elevations while the left banks are covered with vegetation and mango trees. This peculiar phenomenon is due to the fact that the prevailing east winds pile up the shifting sand on the right banks of the river mouths, preventing all plant life, while the sand that is blown over these dunes is carried away by the stream and so does not reach the left shores.

This completes the survey of the first great portion of the Brazilian coast line for a distance which, estimated at 2,057 kilometers (1,278 miles), increases to 3,577 kilometers (2,222 miles) if measured along the contours of the various major indentations. In this stretch of nearly 1,300 miles only eleven degrees of latitude from north to south are covered, showing the dominant east and west direction of this portion of the coast.

At Cape Calcanhar or Point Touros close by, the coast line takes a pronounced southerly direction for a distance of nearly 300 miles. The first important accident is the well-known Cape São Roque, 30 miles to the south. Small hills border the whole of this coast, some of sand and others of reddish rock, growing more pronounced as the southern extremity is reached. Here the coast is somewhat less barren and more thickly populated, various towns being scattered along the coast, chief among which are Natal, capital of the state of Rio Grande do Norte, Parahyba, capital

of the state of the same name, and Recife, capital of the state of Pernambuco, the last named being the fourth largest city in Brazil and the fourth seaport in order of importance. But there are no bays of importance in this stretch of coast, no first class natural harbors, few streams of any size, and only one island of importance, Itamaracá, north of Recife. Opposite Cape São Roque there begins to appear an enormous coral bank extending 700 miles or more along the coast as far as São Salvador, capital of the state of Bahia. This bank, of a mean width of from 100 to 200 feet, sometimes closely skirts the shore and sometimes lies a thousand feet or more distant from it.

From Recife the shore line takes a southwesterly direction as far as São Salvador in Bahia, a distance of over 400 miles. Here the coast line though still sandy, low and marshy in great stretches, is broken by numerous streams, chief among which is the São Francisco, the largest river lying wholly within Brazilian territory, and the only one of importance that empties into the Atlantic on the whole southeastern stretch of the Brazilian coast. The elevations of the interior plateau are here almost continuously visible from the coast, which they actually attain at one or two points. Of important islands there are none, and of bays and harbors only those at Maceió and Aracajú, capitals of the small states of Alagoas and Sergipe respectively, are worthy of mention.

But the Bay of Todos os Santos (All Saints'), on which is situated the city of São Salvador, commonly called Bahia after the state of which it is the capital, is one of the great natural harbors of Brazil. Twenty miles across the mouth, where it is diverted into two channels by the large island of Itaparicá, nearly 20



miles long, this bay extends inland to the northward with a contour of 182 miles, and is dotted by numerous islands.

For 450 miles below the Bay of Todos os Santos, the coast follows a nearly due southerly direction with a slight bend to the west in the lower portion. For about half the distance low elevations parallel the coast, which is broken by few indentations, though cut by various streams arising in the foothills of the interior plateau, some 40 miles inland. For the rest of this distance the marked elevations of the coastal range recede again to a distance of some fifty miles, leaving the shore line low and marshy, covered with numerous lagoons, connected with each other by a multitude of small rivulets, affording sustenance to a scrub vegetation. No harbors or bays of any importance appear in this stretch, and of the numerous bars, banks and reefs that skirt the shore none is of any importance.

From the River Doce or Sweet River, on, the coast takes a more pronounced westerly swing and begins to assume a wholly different aspect. A short distance south of this river the coastal range begins to approach ever closer to the sea, until it comes to within fifteen miles of the coast, isolated peaks of nearly 3,000 feet approaching to within as close as eight miles, and lesser peaks bathing their very bases in the Atlantic. Thus is formed the marvelously beautiful bay of Victoria, capital of the state of Espirito Santo, outstripped in natural beauty only by the bay of Rio de Janeiro itself. But with this exception the coast is singularly lacking in natural harbors in this stretch of 190 miles from the Doce River to Cape São Thomé, and in its lower portion it again assumes the low marshy character of the more northern stretches.

At Cape São Thomé the coast line turns in and runs west of southwest for a distance of some 120 miles to Cape Frio. It continues low and marshy, covered with lagoons and extensive salt beds. Neither bays nor islands relieve this stretch until Cape Frio itself is reached, which is located on an island at the entrance to the bay of the same name. Here the coast line turns still more and runs due west 80 miles to the eastern entrance of Guanabara Bay on which is located Rio de Janeiro. The shores continue low, sandy, and barren, though outriders of the coast range are continuously visible and precipitous rocks advance in many places to the sea, and numerous rocky islets skirt the shore.

The Bay of Rio de Janeiro, as it is commonly called, though its proper designation is Guanabara Bay, is the finest natural harbor of Brazil, and, indeed, of the world. With an entrance less than a mile across, guarded by two great monoliths and divided by the diminutive rock island of Lage, the bay extends almost due north for a distance of nearly 24 miles, with a maximum width of nearly 18 miles and a contour of 90 miles. Its area of 158 square miles, inclusive of the numerous islands therein, is sufficient to harbor all the fleets of the world, while the depth of its entrance, 26 fathoms (more than 150 feet) makes entry safe in the stormiest weather. At the lower portion of the bay the hills, some more than 3,000 feet high, push almost to the water's edge, while the upper portion is separated from the Organ Mountains, a part of the coast range, by marshy flats some 20 to 30 miles in width. The almost unbroken circle of mountains surrounding the bay make it the most beautiful, as well as the best, harbor in the world.

The coast continues its westerly direction from here

to Ilha Grande or Great Island and Point Cairuçu just beyond, 68 miles in a straight line. But so broken is this stretch by bays and promontories, capped by peaks rising as much as 3,000 feet or more almost straight up out of the ocean, that the shore line for that same stretch measures over 200 miles, or three times the distance in a straight line. No seaports of any importance are located in this stretch, but there are two great bays, Sepitiba and the Bay of Ilha Grande, the latter of which has long been advocated for the main naval base of Brazil. Of the numerous islands the largest is the rocky Ilha Grande, a mountainous mass culminating in a point over 3,000 feet above sea level.

From Point Cairuçu the coast follows a direction of westsouthwest. The first stretch extending to Point Itaipú at the southwestern entrance to the Bay of Santos is only 125 miles by sea, but owing still to the broken character of the coast measures more than 200 miles along the shore. Here the main coast range itself runs down to the very shore, admitting of neither streams nor harbors of any importance. Narrow stretches of sandy beach, flanked by precipitous rocks and guarded by rocky islands, characterize this stretch of coast. The two most important islands are São Sebastião, separated from the promontory of the same name by a strait from one to two miles wide, and Santo Amaro at the entrance to the harbor of Santos. This is the second harbor of Brazil in volume of trade, the great coffee port of the world, situated a few miles up a broad and deep channel from the sea.

The next stretch of some 168 miles from Santos to the boundary between the states of São Paulo and Paraná, just south of Cananéa, continues in a southwesterly direction but presents quite a different char-

acter from the preceding stretch. The coast range, though still plainly visible from the sea, has receded again leaving sandy beaches backed by broad stretches of low lands traversed by numerous little streams, and broken here and there by spurs of the mountains. Only one stream worthy of the name, however, flows into the sea, the Iguapé, emptying into the ocean at the small port of the same name. South of that for 60 miles long narrow sandy islands skirt the shore, forming an inner channel of quiet waters suitable for coast-wise navigation of vessels of 12 to 14 feet draft. The chief of these islands are Ilha Comprida (Long Island) nearly 40 miles in length, and Cardoso Island, of a hilly character, with Cananéia Island and the port of the same name to the landward of them.

Here again the coast range, now beginning to diminish in altitude, crowds close to the sea, almost surrounding the important Bay of Paranaguá a few miles to the south. This bay measures a little over 10 miles in width at its mouth, but its internal contours amount to over ten times that distance. Thirty-five miles south of this occurs the Bay of Guaratuba and below that, seventy miles from the Bay of Paranaguá occurs another major bay, that of São Francisco, guarded by the large triangular island of the same name. This bay is some 18 miles wide at its mouth, but has a shore line of nearly fifty miles, is deep and well protected to the seaward by the island at its entrance.

The coast turns due south again at this point, for a distance of almost 200 miles of coast line, though only half that distance by sea, to Point Pinheira. Rugged and broken, with the mountains still crowding the coast, the shore line shows in this stretch as its most important feature the large island of Santa Catharina,

separated from the mainland by a navigable strait, only one quarter of a mile wide at its narrowest point. This island, 42 miles by 8 miles, comprising a good-sized lagoon and a hill nearly 1,500 feet high, has on its shoreward side the port of Florianopolis, capital of the state of Santa Catharina. Though possessing a deep and well protected harbor, the value of the port is greatly diminished by the bars that impede entrance both from the north and from the south except for light draft vessels.

From Point Pinheira the coast runs west of south again for a distance of 140 miles to the boundary between the states of Santa Catharina and Rio Grande do Sul. The coastal range again recedes and leaves considerable areas of low sandy flats covered with lagoons between mountains and sea. Neither important rivers nor natural harbors are found along this stretch, in marked contrast with the coast line of Paraná and northern Santa Catharina.

Continuing in a southwesterly direction the entire stretch of coast line of the state of Rio Grande do Sul to the boundary with Uruguay, a distance of nearly 400 miles, presents a monotonous succession of low sandy shores, covered with dunes, and dotted with lagoons. Only one major indentation occurs, that at the entrance to the Lagoa dos Patos (Duck Lake), covering an area of 3,900 square miles and separated from the sea by a long narrow sandy peninsula. At the north end of this lake is situated Porto Alegre, capital of the state of Rio Grande do Sul, ranking tenth among the ports of Brazil. The coastal range dies away in the northern portion of this stretch and the low elevations of the southern part are beyond sight from the sea.

This last major division of the Brazilian coast, from Cape São Thomé, north of Rio de Janeiro to the River Chuy on the Uruguayan border, measures 1,850 miles along the shore, but only 1,115 miles by sea, a sufficient index of the extremely broken character of the major portion of this stretch.

International Boundaries

On its landward side Brazil touches the three Guianas and each of the other South American states with the exception of Ecuador and Chile. The boundaries with all of these countries have been settled by treaty arrangement, although the actual surveying of the boundaries has not been completed and differences of opinion in the application of treaty provisions are being encountered repeatedly in the work of the joint commissions engaged in that task.

At the northernmost point of its Atlantic coast line Brazil touches French Guiana. According to the arbitral decision rendered on December 1, 1900, by the President of Switzerland, the boundary line between the two countries follows the center of the channel of the River Oyapoc from its mouth to its principal source. From there it follows the water-shed of the Tumucumaque Range to the boundary of Dutch Guiana or Surinam.

The Brazilian boundary with Dutch Guiana was determined by treaty of May 5, 1906. Beginning at the French boundary at the headwaters of the River Maroni it follows the watershed in a westerly direction to the boundary with British Guiana at the headwaters of the River Corentyne, or Corentino.

With British Guiana the Brazilian boundary was fixed by arbitral decision of King Victor Emmanuel III

of Italy, pronounced on June 6, 1904. According to the terms of this award the line runs from the Dutch boundary at the source of the Corentyne River westward along the watershed of the Acarahy and Uassary ranges to the headwaters of the Tacatú River. Thence it follows the line of that river northward to its confluence with the Ireng or Mahú River, and up the latter to its source on Mount Yankontipú, thence westward by the summits to the headwaters of the Cotingo River on Mount Roraima. Some uncertainty existed as to the last-named stretch of this boundary after the award because the decision erroneously assumed that the River Cotingo had its source on Mount Yankontipú instead of on Mount Roraima a short distance to the west, as subsequently proved to be the case. Subsequent negotiations were required, therefore, to rectify this little stretch of international boundary.

The boundary line with Venezuela was agreed upon by treaty of May 5, 1859, between the two countries. Starting at the easternmost boundary of Venezuela, Mount Roraima mentioned above, where the two countries come together with British Guiana, the line follows the summits of the Pacaraima Range westward to the junction of this range with the Parima Range, all waters running into the Rio Branco to the south belonging to Brazil, and all waters running into the Essequibo, Cuyuni and Coroni Rivers to the north belonging to Venezuela. Then the line runs to the south along the summits of the Parima Range to its junction with the Tapirapecó Range, all waters flowing into the Rio Branco belonging again to Brazil and all those flowing into the Orinoco belonging to Venezuela. Thence it runs southwest along the summits of the Tapirapecó Range to Mount Cupi, and thence west and

northwest to the confluence of the Macapury with the River Negro, near the present town of Cucuhy. Subsequent protocols were required to define more accurately the westernmost part of this boundary, viz., that portion between the Rio Negro and Mount Cupi to the east, protocols signed on December 9, 1905, and approved by the Brazilian Congress on November 6, 1907.

From western French Guiana, therefore, the whole northern frontier of Brazil with the Guianas and Venezuela is marked by the continental divide between the basin of the Amazon to the south and the basins of the Guiana rivers and the Venezuelan Orinoco to the north. At the beginning of the Colombian boundary, though the watershed between the tributaries of the Amazon and those of the Orinoco is still adopted as far as possible as the dividing line, this natural boundary is much less pronounced and more difficult to locate, therefore, and is not in all cases followed even when ascertained. The boundaries with Colombia are determined by the treaty signed on April 24, 1907, and ratified by Brazil a year later. This line starts at the junction of the Macacuny or Macapury River with the Rio Negro at Cucuhy, and runs to the source of the first-mentioned stream in a westerly direction. Thence it follows the watershed northwest passing between the headwaters of the Japery and the Tomo, thence westerly along the divide to Mount Caparro. Thence, still following the watershed, it runs to the principal source of the River Memachi, affluent of the Naquieni, the latter flowing into the Guainia, as the upper Rio Negro is called in Colombia. Following again the watershed the line runs to the headwaters of the principal affluent of the Cuiary or Iquiary, thence to the junction of this affluent with the Iquiary. From here the line follows

the Iquiary to its junction with the Pegua, thence due west to the meridian that passes through the junction of the Kerary and the Uaupés, south along said meridian to said junction, and thence along the bed of the Uaupés to the point where the River Capury empties into the Uaupés. Thence the boundary follows the bed of the Capury in a westerly direction to its source, thence due south to the Taraira and along the bed of said stream to its confluence with the Apaporis. Thence the boundary continues in a southerly direction along the bed of the Apaporis to its confluence with the Japurá or Caquetá.

With Ecuador, Brazil negotiated a boundary treaty on May 6, 1904. But as the portion of the Brazilian boundary claimed by Ecuador to be contiguous with the latter country was claimed also by Peru, the treaty with Ecuador was made conditional upon the outcome of this boundary controversy between the two countries. As so agreed upon, the line follows the geodetic curve from the confluence of the Apaporis with the Japurá or Caquetá, the southernmost point of the Colombian-Brazilian boundary, to the mouth of the Santo Antonio on the left bank of the Amazon between Tabatinga and Leticia, except that the bed of the Putumayo or Içá River shall constitute the boundary between the points where that river is cut across by the geodetic curve designated.

With Peru, Brazil had concluded a boundary treaty on October 23, 1851, recognizing the line between the Colombian boundary and Tabatinga as the one covering the territory in dispute between Peru and Ecuador. This was modified slightly in 1874 by an accord which accepted the bed of the Putumayo or Içá River as the boundary between the points cut across by the geodetic

line. However the boundary controversy between Peru and Ecuador might turn out, therefore, a controversy not yet wholly determined, the Brazilian boundary in this region was fixed by the two treaties above mentioned.

The treaty of 1851 with Peru had stipulated as the boundary line, south from the confluence of the River Javary with the Amazon, the course of the former stream to its source, but nothing was said of the rest of the Brazilian-Peruvian frontier. So a supplementary treaty was negotiated between the countries on September 8, 1909, which defines that boundary as follows: From the source of the Javary the line runs in a southerly direction along the watershed between the Ucuyali on the west and the Juruá on the east, to the parallel S. $9^{\circ} 24' 36''$, thence east along said parallel to the confluence of the Breu with the Juruá. Thence it follows the bed of the Breu to its principal source, thence along the watershed to the source of the River Santa Rosa, affluent of the Purús, along the 10th parallel. Thence it follows the bed of the Santa Rosa to its confluence with the Purús in an easterly direction and thence up the bed of this stream in a southerly direction to the mouth of the Chambuyaco. Thence it follows the bed of the Chambuyaco to its source, and from there due south to the River Acre or Aquiry, or to the 11th parallel of south latitude, if the source of that stream lies to the east. Thence along the bed of that stream or, in the supposed case, in an easterly direction to that stream and then along its bed, to the Peruvian-Bolivian border on the right bank of the Upper Acre. The surveying and marking of these boundaries is at present under way by a joint Brazilian-Peruvian commission.

With Bolivia the Brazilian frontier was originally fixed by treaty of March 27, 1867, to extend on the north from the Madeira River at latitude S. $10^{\circ} 20'$ to the Javary River, making a diagonal in a westnorth-west direction. But in consequence of the Treaty of Petropolis of November 17, 1903, the Territory of Acre was ceded to Brazil and the boundary lines delimited as follows: From the Bolivian-Peruvian boundary the line follows the River Acre or Aquiry to the mouth of the Bahia, thence up the bed of that stream to its source, thence by the summits to the River Rapirran at its source. Thence the line follows the bed of that stream to parallel $10^{\circ} 20'$ south and due east along that parallel to the Abuña River, thence along the bed of that river to its confluence with the Madeira. Here the boundary turns south again and follows the bed of the Madeira to the junction of the Rivers Beni and Mamoré, thence up the bed of the last-mentioned river to its confluence with the Guaporé, and up the bed of the latter stream to the mouth of the Rio Verde. This latter stream it follows to its principal source, and from there in a straight line, a little east of south, to Mount Quatro Irmãos. Here the line turns due east to Mount Boa Vista, and from there south again through the marshes of Peinado and São Mathias to the southernmost point of Grand Marsh, and to Uberaba Lagoon. Thence the line follows, in a southerly direction still, through the lagoons of Uberaba, Guahyba, and Mandioré, and the River Pando that connects the two first. Thence through Lake Caceres and the Conceição, thence west to latitude S. $19^{\circ} 2'$. From here the line runs southwest to a point 4 kilometers northeast of the head of Bahia Grande. Thence it runs to a point on the Paraguay River 9 kilometers from Fort Coim-

tra and thence down that stream to the mouth of the Bahia Negra Lagoon, opposite the territory in dispute between Bolivia and Paraguay. Small stretches of this boundary still remain to be definitely marked.

The boundaries between Brazil and Paraguay were fixed by the terms of the treaty of January 9, 1872, following the Paraguayan War. From the Bolivian border-point at the mouth of the Lagoon Bahia Negra on the Paraguay River, down the right bank of that stream to the mouth of the Apa, the territory is in dispute between Bolivia and Paraguay and the boundary monuments have not yet been set, though the bed of the river is claimed as the Brazilian line. From the mouth of the Apa the line follows the bed of that stream to its principal source, known as the Estrella. Thence it runs along the summits of the Caaguacú and Maracajú Ranges eastward to the Seven Falls on the Paraná River, and thence south down that river to the mouth of the Iguassú, where it meets the Argentine border.

With the Argentine Republic Brazil had a long-standing boundary controversy, dating from the famous treaty of Madrid concluded between Spain and Portugal on January 13, 1750, delimiting their respective possessions in South America. The Uruguay River was established as the boundary by that treaty and remains such to the present day between the mouth of the Quarahim on the Brazilian-Uruguayan border and the Peperý-Guassú, to the north. But Argentina claimed that the boundary from there north, marked by the Peperý-Guassú and Santo Antonio Rivers, really extended eastward to the Rivers Chapecó and Chopim, which, as Argentina alleged, were the rivers designated by the early treaty. The matter was finally

submitted to the President of the United States, President Cleveland, for arbitration, and on February 5, 1895, his award was issued confirming the Brazilian position. In accordance with that award and the treaty of October 6, 1898, in execution thereof, the boundary runs from the mouth of the Pepery-Guassú up the bed of that river to its principal source and from there by the highest points to the principal source of the Santo Antonio, and then down the bed of that stream to its confluence with the Iguassú. From there the boundary runs down the Iguassú to its mouth in the Paraná at the Paraguayan border. In 1910 supplementary accords between the two countries defined more clearly the exact boundaries at the southern extremity of the frontier.

With the Republic of Uruguay a boundary treaty was negotiated on October 12, 1851, modified somewhat in 1852 and 1853, and put in final form by the treaty of October 30, 1909. By the terms of this treaty and the Explanatory Convention of December 27, 1917, the boundary line between Brazil and Uruguay is as follows: Starting at the mouth of the Quarahim, at the River Uruguay, the line ascends the bed of the Quarahim to the mouth of its affluent, the Invernada, and up the latter to its source. Thence along the summits of the Haedo, Santa Anna, and Serrilhada Ranges and Mount Cemiterio to the source of the stream São Luiz. Thence it follows down that stream to its mouth in the Rio Negro and thence in a straight line through the Aceguá Range to the source of the Mina. Descending the bed of the Mina to its confluence with the Jaguarão Chico, the line follows the latter stream to its mouth in the Jaguarão. Following the bed of the Jaguarão the line reaches Lake Mirim, passing between Points

Fanfa and Muniz and along the middle of said lake to the mouth of the São Miguel at its southern extremity. Thence the boundary ascends the São Miguel and crosses over to the Chuy, which latter it follows to its mouth in the Atlantic.

Owing to the fact that large portions of this enormous frontier of Brazil with neighboring countries are still in process of survey and demarcation its exact extent cannot yet be given, but it can be placed conservatively at 7,500 miles. Noteworthy is the fact that it is determined in practically its entire length by natural boundaries; rivers, mountains, and watersheds. More noteworthy still is the fact that all of these boundaries, though unmarked and matters of dispute when Brazil became an independent nation in 1822, have all been fixed by peaceful negotiations, and in at least three cases by submission to arbitration, while in the case of the boundary with Uruguay, Brazil voluntarily ceded to the latter republic its own acknowledged exclusive rights over the Jaguarão River and Lake Mirim.

Topography

A glance at the physical map of Brazil shows four or five well defined and quite unequal areas. In the north and northwest of the country lies the enormous basin of the Amazon, but little above the level of the sea. Bounded on the north by the Guiana highlands, on the west by the Andes, and on the south by the Brazilian massif, this basin, at one time a mediterranean sea, occupies an area estimated at 2,500,000 square miles. Of this total extent nearly 1,500,000 square miles are included within Brazilian territory, or somewhat less than half of the total area of the

country. From the mouth of the Amazon to the portion of the stream where it receives the Rio Negro, the basin is relatively narrow, but from there to the west it widens out perceptibly, the whole presenting somewhat the form of a recumbent bottle. This is a region of alluvial lands, dense forests and low lying plains, cut here and there by minor ridges and punctuated with shallow lakes.

To the north of the Amazon basin, for a relatively narrow stretch, lie the elevated plains and foothills, leading up to the Colombian, Venezuelan, and Guiana highlands, the summits of the latter constituting, as has been seen, the major portion of the boundary between Brazil and Venezuela and the Guianas.

To the south of the Amazon basin lies the Great Brazilian massif, a vast plateau comprising five-eighths of the area of the entire country. Starting near Cape São Roque in the northeast a contour line at the 200 meter level (650 feet) runs westward to the Santo Antonio Falls on the Madeira River, thence southeast to west of the Paraguay River, thence south, just a little west of the Brazilian boundary with Bolivia, Paraguay, and Argentina, to about 30° S. latitude, thence east almost to the Atlantic Ocean, and then from 40 to 60 miles back from the same, paralleling the coast northeastward up to Cape São Roque again. As so outlined the great Brazilian plateau bears a striking resemblance in shape to the form of the entire country.

The mean elevation of this table-land is from 1,000 to 3,000 feet above sea level. It is cut through by numerous valleys formed by erosion and surmounted by two great mountain ranges, and many secondary ridges and isolated peaks, the highest elevation in Brazil falling short, however, of 10,000 feet. The great

table-land may be conveniently divided into four major plateaus. The Amazonian plateau comprises all the northwest portion of the highlands cut through by the tributaries of the Amazon. The plateau of the Paraná River comprises all the southern portion of the great table-land, clear to the divide of the Coastal Range, the waters of which find their outlet to the Atlantic in the River Plate to the south. The plateau of the São Francisco comprises the area to the east of the Amazonian plateau and north of that of the Paraná, drained by the São Francisco and its tributaries, emptying into the Atlantic ultimately in an easterly direction. Finally, the plateau of the Parnahyba in the northeast, much smaller than the others, includes that portion of the great table-land drained by that river in its northward course. These plateaus are separated from each other by fairly pronounced mountain ranges.

This interior table-land, comprising, as has been seen, more than half the area of Brazil and lying at a mean elevation of more than 2,000 feet above sea level, concerning the soil, climate, and products of which more will be said later, is rightly designated as the "real Brazil," in contrast to the tropical lowlands of the Amazon basin which are ordinarily pictured in the uninformed mind upon mention of that country. It is, in truth, an empire in itself.

On the west the Brazilian plateau is bounded by the basin of the Paraguay and Paraná Rivers, another immense stretch of lowlands in former times a mediterranean sea, parts of which at present lie below sea level. But only a very small portion of this basin is included within Brazilian territory, and except for the fact that the Paraguay and Paraná Rivers afford water communication between Brazil and parts of Bo-

livia, Paraguay, and Argentina, this narrow stretch is a very minor region of Brazil.

The fourth main region of Brazil is that narrow stretch of land lying between the great plateau and the Atlantic Ocean. As has been seen in the description of the Brazilian coast, this is a very small strip indeed in the stretch south of Cape São Roque, at times literally disappearing altogether where the Coastal Range crowds down into the sea. North of Rio de Janeiro it widens out somewhat, though still a minute area as compared with the whole westward extent of the country, and it was along this stretch that the earliest settlement of Brazil took place. Because of the location of the principal seaports in this ribbon of littoral, the area in question has an importance far beyond that indicated by its extent, but in the portion from Cape São Roque to the estuary of the Amazon, the coastal plains, though much broader in extent, are of relatively little economic importance.

The physical and climatic characteristics of these various regions will be considered more or less minutely in other connections, but in this preliminary survey it is well to remember that in extent the Amazonian lowlands, those of the Paraguay-Paraná, and those of the Atlantic seaboard, all put together are not equal to the great interior plateau, the "planalto central" as it is commonly called.

Rivers

Next to the enormous stretch of Atlantic seacoast and the preponderant rôle played by the Brazilian plateau, the most striking as well as significant of the physical features of Brazil is the stupendous river system of the country. The total length of the in-

numerable rivers of Brazil cannot even be accurately estimated at the present time, due to the absence of a complete topographic survey, but some notion of its immensity may be gained from the fact that the navigable stretches total more than 40,000 miles.

It will immediately be noted that although the various streams of Brazil show courses flowing in every direction of the compass, the waters of every one of them flow ultimately into the Atlantic Ocean. For purposes of convenience in classification, however, the rivers may be divided into three main groups. These are the rivers of the Amazonian system, the rivers of the Plate system, and all the others, which do not properly constitute a system but which, being located in the eastern portion of the country, are commonly grouped together as the eastern or coastal system.

In the Amazonian system the principal river, of course, is the one that gives its name to the entire system and to the great basin which has already been considered. Although known under different names, the main stream of the Amazon begins in the Peruvian Andes and flows under the designation of the Marañon a distance of 1,500 miles to the Brazilian frontier. The river was first discovered in the year 1500 by the Spaniard Vicente Yañez Pinzón, sailing into its mouth and calling it the "Mar-Dulce" or Fresh Water Sea. Of the origin of the name Marañon, later given to the river and still applied to its Peruvian extent, nothing is definitely known, though it is supposed that it was derived from the "marañas" or "whoppers" told about it by the early navigators. In 1542, however, another Spanish navigator, Francisco Orellana, sailed the entire length of the river from Peru to its mouth in the Atlantic and gave it the name Amazonas owing

to the fact, it seems, that he claimed to have been attacked at one place by a band of female warriors. From the Brazilian border to the mouth of the Rio Negro, the river is known as the Solimões, after an Indian tribe that dwelt along its shores, but in general usage the name Amazon is now applied to the entire Brazilian portion of the river and sometimes even to the lower portion of its Peruvian course.

At Tabatinga on the Peruvian-Brazilian frontier, 3,165 kilometers or almost 2,000 miles from its southern entrance from the Atlantic known as the Pará, the normal river level is only 71 meters or 231 feet above sea level. Its rate of descent, therefore, is only about 2.8 inches per mile and yet its normal average current is $1\frac{1}{2}$ miles an hour, due to the enormous amount of water it carries. Its depth at Tabatinga is 65 feet, sufficient therefore to float the biggest steamers afloat, while its width at that point is 2,775 meters or $1\frac{3}{4}$ miles. At Obidos, where the river is compressed to its narrowest width by low elevations that approach from the north, it is still well over a mile wide (1.9 kilometers) and its normal depth is 244 feet (75 meters). At other points along its course it widens out to $3\frac{3}{4}$ miles, and at the beginning of its delta where the Xingú empties into the main stream the width is over 8 miles.

For purposes of comparison it may be enlightening to point out that the Mississippi, "Father of Waters," though longer than the Brazilian portion of the Amazon, is shorter by 700 miles than the entire length of the Amazon, and discharges less than one-fourth of the volume of water into the ocean per second (about 24,660 cubic yards per second on the average) that is emptied into the Atlantic by the mighty Amazon (80,000 cubic meters or about 104,800 cubic yards per

second). For a distance of 300 miles out to sea the muddy waters of the Amazon are distinguishable from the blue seas of the Atlantic. On the other hand the effects of the sea tide are felt for a distance of nearly 500 miles up the Amazon to Obidos.

Throughout the length of its course the Amazon exhibits regular annual flood seasons and seasons of low water, varying, however, in the different portions of the river. The flood season, lasting normally three months, begins in February in the stretch above the Rio Negro, in April in the portion below the Rio Negro, and in June in Pará at the mouth of the river. In the flood seasons, the water regularly rises to 30 or 40 feet above mean level, varying in the different portions of the stream, and at low water it falls to as much as 15 to 30 feet below mean level. As the banks of the river are extremely low, especially above the influx of the Madeira, the waters in flood season overflow the normal banks for untold thousands of square miles, making a vast inland sea of a considerable portion of the basin and leaving countless lagoons in the dry season. The falling of the waters causes impediments to navigation in the upper reaches of the river, but at all seasons of the year ocean-going steamers regularly ascend the Amazon to Manáos, ten miles up the Rio Negro and a thousand miles from Pará at the mouth.

More than 6,000 islands mark the course of the stream, separated by a network of canals, among which it is often difficult to pick the main channel, so that the full width of the stream is rarely visible from bank to bank. The largest of these islands is the one called Tupinambarana, at the confluence of the Madeira, and has an area of over 8,000 square miles. The alluvial soil of the areas subject to inundation is of unexcelled

fertility as is indeed most of the forest-covered area of the entire basin.

More than a thousand tributaries flow into the Amazon in the Brazilian portion of its course, those on the left bank originating in the highlands of Colombia, Venezuela, and the Guianas, those on the right bank coming from the western slopes of the Andes and the northern slopes of the Brazilian plateau. Of these, ten or a dozen on either side are of considerable importance, as they are all navigable to a greater or less extent along their courses and offer a network of waterways connecting the whole interior of Amazonia, as the great basin is commonly called, and giving it access to the sea. These will be considered more minutely in other connections and need not arrest our attention any longer at this point.

The Rivers Paraguay, Paraná, and Uruguay with their affluents constitute the Plate system, so-called because they all contribute their waters to form the great estuary south of Uruguay known as the Rio de la Plata or Plate River. In addition to a common outlet, these three major rivers have the following characteristics in common. They all originate in Brazilian territory flowing in a southerly direction, they all constitute for a portion of their courses parts of the boundaries between Brazil and her western neighbors, and the lower reaches of all three streams flow in non-Brazilian territory.

The Paraguay River rises in the plateau of Matto Grosso, only a few miles south of the watershed on the northern slopes of which arise several of the major tributaries of the Amazon. Originating in a group of seven lagoons it sweeps in a curve first to the northwest and then southwest and quickly descends to the

great basin of the Paraguay only a few hundred feet above sea level. From the town of São Luiz de Cáceres south the river is already navigable for vessels drawing 7 to 8 feet of water. The total length of the river from its source to where it leaves Brazilian territory at the confluence of the Apa is 880 miles, and then it runs another 420 miles through Paraguayan territory to its confluence with the Paraná. Below that point the river is known by the latter name, though properly the Paraná should have been considered an affluent of the Paraguay, instead of the other way round.

The mean width of the Paraguay River in Brazilian territory is over 1,000 feet and its mean minimum depth is 10 feet, making it navigable at all seasons for steamers of that draft from Argentina and Paraguay clear up to Corumbá. Like the Amazon, however, it is subject to periodic rises from January to July that raise the level of the river to twice its normal depth and overflow its banks for many hundreds of miles. At such times the marshy region it traverses between Villa Maria or São Luiz de Cáceres and Corumbá becomes one vast inland lake, known as the Xarayes, with more than 9,650 square miles of surface.

In Brazilian territory the Paraguay receives a number of affluents, chiefly flowing down into its valley from the Matto Grosso plateau to the east, all of them navigable to a greater or less extent, and losing themselves in the highwater season, like the main stream, in the lagoons and marshes that border their banks.

Quite different in character from the Brazilian stretches of the Paraguay, a low-lying, slow-moving, unbroken stream, is the Paraná. This latter stream, the Indian name of which signifies Mother of Waters, is in its Brazilian portion a river of the highlands. It

is formed by the junction of two rivers, the Parana-hyba (not to be confused with the Parnahyba in north-eastern Brazil) and the Rio Grande. Geographers are not agreed as to which of these two streams is to be considered the principal trunk of the Paraná. The Parana-hyba, usually considered as the main continuation of the Paraná, rises on the western slopes of the Canastra Range in western Minas Geraes and flows north and west to the confluence of the São Marcos, where it turns west and southwest to its junction with the Rio Grande. This is a swiftly flowing river broken by rapids and waterfalls, the principal one of which, that of Dourada, has a width of three-quarters of a mile, with a fall of from 40 to 50 feet and an estimated force of 400,000 horse power. It is, therefore, of no importance for navigation, though it has a course of nearly 600 miles. The Rio Grande, having a length of some 850 miles and starting on the northern slopes of the Mantiqueira Range, is likewise broken by numerous rapids and waterfalls, though it presents various navigable stretches between these falls.

The Paraná proper, resulting from the junction of the Parana-hyba and the Rio Grande, flows only a short distance before it is broken by the Urubú Pungá Falls, which constitute a barrier to navigation from below. But after passing those falls the river widens out to nearly a mile and a half and is then navigable for 325 miles to the great Guahyra Falls, commonly known as the Seven Falls, at the point where the Paraná River becomes the boundary with Paraguay. Here the river narrows to barely 230 feet between the elevations of the Maracajú Range, and drops in seven distinct falls, the chief one of which has a drop of 55 feet, with a total horsepower estimated at from 4,000,000 to 20,000,000,

one of the greatest potential sources of hydro-electric power in the world. From here the river begins to descend to the great basin and forms the boundary between Brazil and Paraguay as far as the mouth of the Iguassú. The affluents of the Paraná in its Brazilian stretches are principally from the east and have their sources in the coastal range not many miles from the Atlantic. Being highland streams they offer very little in the way of navigation facilities.

The last of the three main rivers of the Plate Basin is the Uruguay. Arising under the name of the Pelotas near the southern extremity of the Coastal Range, it flows north and west to the Argentine border where it receives the name of Uruguay, or Mollusk River. From there it constitutes the boundary line between Brazil and Argentina as far as the mouth of the Quarahim, and below that it is the boundary between Argentina and Uruguay, emptying with the Paraná into the head of the Plate. About 625 miles, or two-thirds of its total course, are in or contiguous to Brazilian territory, but in this portion it is broken by rapids and waterfalls and is navigable, therefore, for short stretches only. In the spring the river is subject to great floods, its waters then rising as high as 40 feet. It has many affluents, but none of importance.

Of the many rivers that belong to the so-called eastern system, that is, those flowing directly into the Atlantic, only two need be mentioned in this preliminary survey. These are the Parnahyba, emptying into the Atlantic about midway between the mouths of the Amazon and Cape São Roque, and the São Francisco, flowing into the sea some little distance south of the cape mentioned. In fact it is one of the outstanding features of the Atlantic seaboard of South America

that in the 4,000 miles between the mouth of the Amazon and the estuary of the Plate there are only minor streams. This is due, of course, to the fact that the highest ridges of the Brazilian plateau crowd down close to the sea and leave no space for the formation of great streams between them and the Ocean.

The Parnahyba rises on the northern slope of the Tabatinga Range, in the northern portion of the Brazilian plateau, and cutting a precipitous channel to the sea has a total length of over 1,000 miles. But only the lower 400 miles are navigable in the flood season, and that only for light draft vessels. The São Francisco, rising in the same range as the Parnahyba, but flowing in a diametrically opposite direction, is another highland river, and having a total length of nearly 3,000 miles is easily the most important river that lies wholly within Brazil. Cutting through the great Brazilian plateau in a northeasterly direction its course is marked by countless rapids and waterfalls, some of which are among the most notable of the world. Chief among these are the Paulo Affonso Falls, nearly 200 miles from the mouth of the river, having a fall of 260 feet and a potential horse power of 2,000,000. Above these falls it has a mean width of 2,000 feet and a mean depth of 10 feet with a current that gives a flow of 2,000 cubic meters (2,600 cubic yards) per second. Between waterfalls it presents considerable navigable stretches, and below the Paulo Affonso Falls it becomes nearly a mile wide.

Only a word need be said at this point concerning the lakes of Brazil, for compared with the striking position occupied by the rivers of that country, or with the importance of lakes in the northern continent of the western hemisphere, they occupy a very minor posi-

tion. True, the number of lagoons and lakes in Brazil is exceedingly great, but many of them are temporary bodies of water along the river basins or on the coastal plain, filled only during the wet season, while of the others only one is of considerable size or of importance for purposes of navigation. That one is the Lagoa dos Patos or Duck Lake in the southernmost state of Rio Grande do Sul, already noted in describing the southernmost stretch of the Brazilian coast line. It has a length from south to north of 190 miles and a maximum width of 40 miles, with a depth of 30 feet, permitting the navigation of larger vessels on the lake than can enter through the shallower and treacherous Canal of Rio Grande do Sul that connects it with the Atlantic.

Mountains

If the rivers of Brazil constitute one of the outstanding physical features of the country in which Brazil is unexcelled by any country in the world, the same cannot be said of the mountains. Indeed the absence of great mountain ranges comparable to the Rocky Mountains or the Andes is one of the most striking characteristics of the topography of Brazil. Not only is 9,588 feet (2,950 meters) the highest altitude claimed for any point in Brazil, but as many of the ranges and individual peaks are found on the great table-land with their bases already from 2,000 to 3,000 feet above sea level, they lose in grandeur of appearance a good deal of what even their relatively low altitude might be expected to give them. Indeed some of the so-called *serras* or ranges are really not mountains properly speaking but rather elevated portions of the plateau emphasized by the depressions cut between them by the erosive action of the rivers.

Nevertheless, the main features of the mountain ranges, which after all compare favorably with our own Appalachian System, are worthy of brief consideration. They may be divided first of all into the two main divisions of the Guiana System to the north of the Amazon Basin and the Brazilian System to the south of the same.

As was seen in tracing the boundaries of Brazil, the crests of the various ranges belonging to the Guiana Highlands constitute almost continuously the northern boundary of Brazil from the headwaters of the Oyapoc on the east to Colombia on the west. The highest point of this mountain system is Mount Roraima, where Brazil, Venezuela, and British Guiana come together, with an elevation of 2,600 meters (8,500 feet). Below the divide on the Brazilian side there are no mountains or ranges of any great height, the table-land in its gradual slope toward the Amazon Basin being cut into the semblance of hills and ranges by the erosive action of the rivers that feed the Amazon from this side.

The mountain ranges of the Brazilian system may likewise be divided into two major groups or systems. These are generally designated as the Eastern, or Maritime System, and the Central, or Central Western, or Goyana System. The two systems run nearly parallel to each other in the general southwest to northeast direction followed by the coast line of Brazil from Uruguay to Cape São Roque. They are separated from each other by the valleys of the Paraná and São Francisco Rivers, which flow in almost exactly opposite directions from the transverse ridge that connects the two systems between the headwaters of the streams mentioned.

The Eastern System, not infrequently called gen-

erically the *Serra do Mar*, though that name applies more strictly to its southernmost stretches, is made up of a series of ranges with individual names, a single range sometimes having more than one designation. As was pointed out in describing the Atlantic coast line of Brazil from the northeastern extremity south, the crests of these ranges not only parallel very closely the convolutions of the coast, but approach so closely to the sea itself that in some places they descend almost directly into the same, for most of the stretches are only 10 to 20 miles away, and only for a small part of the entire distance leave any considerable coastal plain between their bases and the Atlantic.

The most pronounced section of this system is just to the west and north of Rio de Janeiro, especially where the noted Mantiqueira Range, separated from the sea by the River Parahyba do Sul, so-called to distinguish it from the river of the same name in the northeastern state of Parahyba, and the local range known specifically as the Serra do Mar, presents the heights of Itataya, commonly regarded as the highest elevation in Brazil. This mountain, the exact elevation of which has not yet been finally determined, but is most recently figured at 2,830 meters (9,200 feet) disputes the honor with the Pico da Bandeira, in the Chibata or Caparaó Range some 200 miles northeast of Rio de Janeiro, which the same engineer figured at 2,884 meters (9,363 feet), now accepted, therefore, as the culminating point of Brazil, some surveys claiming for it 2,950 meters or 9,588 feet. In this same central region there are four other mountains with an elevation greater than that of Mount Washington in the White Mountains of New Hampshire.

To the south as well as to the north the crests of the

Eastern Range gradually diminish in altitude. At its southern extremity in Rio Grande do Sul near 30° S. latitude the crests of the coastal range are but a little over 3,000 feet high, and at its northern termination in Rio Grande do Norte at about latitude 6° S. the maximum elevation is even lower. In reality the coastal range is like a great wall guarding the eastern approach to the Brazilian plateau, which slopes off to the west, broken by transverse ranges, and in its southern extent by ridges caused by the rivers flowing into the valley of the Paraná.

The Central Range starts west of the Paraná River at about latitude S. 23° , and running northeast divides into two main series, one running north between the valleys of the São Francisco and the Araguaya Rivers, and the other running northwest to separate the watersheds of the upper Amazon tributaries and the basin of the Paraguay. These ranges are much less pronounced than those of the central portion of the Eastern System, the highest elevation being but 1,775 meters (5,770 feet), the next highest, in the Pyrenees Range, attaining but 1,385 meters (4,500 feet). In the extreme northeast, above the turn in the São Francisco River towards the Atlantic, the ultimate ranges of the Central System intermingle and become confounded with the last outposts of the Eastern System.

Climate

One of the most important of the physical features of any country, from whatever point of view such a country may be considered, is the climate, and it would be most gratifying if that important feature could be described in a single paragraph, page, or even chapter. Were climate dependent merely on geographical dis-

tance from the Equator, it would be simple enough to describe in brief terms the climate of Brazil. For as has been noted, fourteen-fifteenths of Brazil lie in the tropical zone, while the rest lies in the temperate zone, wholly within 34 degrees of the Equator. But the effect of latitude is so profoundly modified by a number of other factors, such as altitude, humidity and rainfall, winds, the proximity of mountains or sea, etc., that no such simple description would suffice for a country of such enormous extent and presenting such modifying factors in so varying degrees as does Brazil. In fact even within relatively small divisions, such as those of the individual states to be considered more in detail farther on, uniform climatic conditions do not exist, though consideration of the climate will be taken up in that connection.

For purposes of a general introductory statement it may be pointed out that the great topographical divisions of the country, already traced, present certain climatic conditions that are more or less characteristic of the entire division. So the basin of the Amazon is a region of slight variations of temperature so far as the seasons are concerned, though differences between day and night temperatures are marked. The average temperature is around 80° , varying between 70° and 90° as average minima and maxima. The seasons are marked only by the succession of wet and dry seasons, varying, however, even within the Amazon Basin, as to the time of their occurrence. The rainfall is heavy and the humidity great, but the steady trade winds blowing up or down the river furnish a continuous breeze. In places the rainfall averages as much as 87 inches annually.

The great interior plateau, even within the tropics,

presents a sub-tropical and temperate climate, though the division into seasons is still rather that of wet and dry than based on temperatures. At the highest portion of the plateau, even north of the Tropic of Capricorn, frosts are not unknown, while to the south of Rio de Janeiro, especially in the state of Paraná, freezing weather and snows are a regular feature of the winters, which here assume their distinctive character as seasons. The extremes of temperature are much more marked in this elevated region of the south than in the tropical zone, for not only are the minimum temperatures well below those encountered in the truly tropical portion of Brazil, but what is perhaps more surprising, the maximum temperatures attained each year are regularly greater than those of any portion of the Amazon Valley.

The narrow strip of coastal plain, shut in between the mountains and the sea, enjoys a climate corresponding pretty closely to the latitudes in its considerable extent, though the influence of the prevailing winds blowing pretty steadily from the sea is both to temper the extremes of temperature and to increase the humidity and rainfall. Rio de Janeiro, almost exactly on the Tropic of Capricorn, has maxima and minima of 97° and 59° , respectively, or an average of 78° , with about 30 inches of rainfall annually, occurring for the most part between November and March. A few miles back from the Bay of Rio de Janeiro in the mountain resorts, the mean temperature is about 62° , with a minimum below freezing.

One other characteristic, though relatively small, area is the drouth region of the northeastern states. Here the dry season is not only exceptionally long, three or four months without a sign of rain, but now

and again extends over a year, or in extreme cases over two or three, turning the region into a desert and consuming or driving out man and beast.

In general it may be said that there is no portion of Brazil in which the climatic conditions are forbidding to the white race, especially to those members of it coming from southern Europe. The unfavorable conditions that do exist in parts of Brazil for all races, white or black or brown, are the result not of climate but of lack of sanitation and public health measures, quite capable, therefore, of being eliminated by human instrumentalities.

Geology

Of the geology of Brazil little will be said at this place, for two reasons, viz., because comparatively little is known as yet, and because the subject is somewhat technical for a general descriptive treatment. Certain aspects of economic geology and mineralogy will be discussed in connection with the consideration of the natural resources of the country.

In a country like Brazil where up to the present not even the whole of the surface has been surveyed, it is idle to look for complete or even fairly complete geologic information. Nevertheless, from the researches of a number of foreign scientists, supplemented in more recent years by the work of Brazilian geologists, certain general aspects can be presented, sufficient perhaps for the interests of the layman.

Brazil is believed to have been united with Africa as late as the Cretaceous Period of the Mesozoic Era, and even into the Oligocene or Eocene Period of the Cenozoic Era. In the Devonian Period of the Paleozoic Era, a large part of the present area of Brazil was

under water, the basins of the Amazon and of the Plate being at that time great seas and the Guiana and Venezuela Highlands and the Brazilian Plateau constituting huge islands.

A large part of Brazil, much of the Great Plateau in fact, belongs, therefore, to the Archeozoic Era, the earliest of the geologic eras. The great Basin of the Amazon and the coastal plains on the other hand fall into the Neocene Period, one of the most recent periods of the Cenozoic or latest geologic era. The bed and delta of the Amazon and the upper reaches of the Paraguay River in the west are of even more recent origin, falling in the Pleistocene or Quaternary Period of the Cenozoic Era.

Igneous rocks are widely encountered in the lower extremities of the coastal range, while triassic and cretaceous formations or systems of the Mesozoic Era predominate in the upper highlands of the Paraguay and Paraná Rivers, and the principal southern affluents of the Amazon. Formations of the Permian Period are predominant in the region between the São Francisco and the Tocantins, while the formations of the earlier carboniferous epoch or period are relatively rare and restricted in extent.

CHAPTER II

THE DISCOVERY AND SETTLEMENT OF BRAZIL

THE discovery of Brazil occurred in a year that is fortunately very easy to remember, viz., 1500, on April 22. The discovery was made by a Portuguese noble by the name of Pedro Alvarez Cabral. This name and this date are the beginnings of Brazilian history in one sense, but in another sense they are themselves merely the consequences of earlier developments that must be at least briefly examined in order to understand how the discovery came about and how it fitted into the whole subsequent history of that part of South America which came to be the Brazil of today.

The discovery of America by Christopher Columbus on October 12, 1492, is an event known to every school child. But the connection between that event, which led to the foundation of the enormous colonial empire of Spain in the New World, and the appearance of Portuguese power in America is less generally understood, though that connection had a profound influence on the entire history of South America in general and of Brazil in particular. It will be necessary, therefore, to point out briefly the main facts with regard to the two nations that shared the Iberian Peninsula at the close of the fifteenth century and that came to share the continent of South America soon after the first discovery.

Spain and Portugal before the Discovery of America

From earliest times until about 1100 it may be said that the two countries which at the time of the discovery of America occupied the Iberian Peninsula, Spain and Portugal, had no clear separate history, as also they had no natural or clearly marked dividing boundaries. Their history was that of the Iberian Peninsula as a whole. Peopled by the Iberians, a race about which little is known save that some two thousand years B.C. it crossed over from Africa and supplanted or absorbed the existing population, the Peninsula was then overrun, some five hundred years before Christ, by the Celts. These peoples, merging with the Iberians, formed the basis of the population of the Peninsula at the time of the Roman conquest, for the invasions of the Phœnicians, Greeks, and Carthaginians that preceded the Roman conquest were not fundamental enough to affect appreciably the racial or linguistic characteristics of the Celto-Iberian stock.

With the Roman domination that lasted some six hundred years, a profound change occurred in the characteristics of the peoples that inhabited the Peninsula. The admixture of Latin blood, which was no doubt relatively slight, was accompanied by a much more profound alteration in the language, institutions, and customs of the Peninsulars. From this long period dates the Latin character of the language, which is the basis of both modern Spanish and modern Portuguese, and also the term "Hispanic" as applied to the peoples of the Peninsula, from the name *Hispania* by which the Romans designated the country.

With the overthrow of the Roman Empire by the Germanic invasions of the fifth century A.D. there is

still no differentiation between the fortunes of the later Spain and Portugal. Throughout the Peninsula various Germanic tribes, especially the Visigoths, settled down, and, though conquerors in a military sense and contributing a new element to the already confused racial composition of the inhabitants, were absorbed into the existing Hispano-Roman element instead of becoming the dominant element.

Again, when at the beginning of the eighth century the Moors began their invasion of the Peninsula, the later Spain and Portugal were alike subjected to the Saracen conquest and to the profound influence of the conquering race and religion, and even to some modifications by their language. When, finally, the five-hundred-year labor of expulsion of the Moors began with the efforts of a small nucleus of Christianized Goths in the mountainous regions of the northern peninsula, Portuguese and Spanish progenitors were still engaged indiscriminately in the great crusade against the Moors, though the first effective blows were struck by the kingdoms of Castile and León, the embryo of the later Spanish kingdom.

In 1095, when Count Henry of Burgundy married the daughter of the king of León, he received as part of his wife's dowry the small region on the borders of Galicia, known as Portucalia. *Portus Cale* was the original Latin name for the present city of Oporto and from that name was derived the name of the region surrounding it, which prior to the period we are now considering formed part of the kingdom of Galicia. Galicia, later a province of the united Spanish monarchy, even today, speaks a dialect more closely related to the Portuguese than to the Castilian.

Due to the preoccupation of the kingdom of León

and Castile with the struggle against the Moors, the counts of Portugal ruled in virtual independence of their royal overlord, and in 1140 Affonso Henriques assumed the title of king, thus founding a separate Portuguese royalty. During the next two hundred and fifty years, the little kingdom of Portugal definitely established its independence from the kingdom of Castile and at the same time prosecuted the war against the Moors so effectively that its possessions were extended southward clear to the ocean, including the fertile Moorish province of Algarves.

When, therefore, after the union of Castile and Aragon, resulting from the marriage of Ferdinand and Isabella in 1469, the way was cleared for the ultimate union of all the rest of the Peninsula under the Spanish Crown and the final expulsion of the Moors, Portugal, thanks to a succession of able rulers and a hardy and adventurous group of nobles, was in a position to take a coördinate place alongside of the world power that Spain rapidly developed into.

Long before the famous voyage of Christopher Columbus under the auspices of Isabella, Prince Henry the Navigator, a younger son of King John I of Portugal, had encouraged voyages of exploration in the interests of the Portuguese Crown. The Madeira and Azores Islands to the southeast and east had been colonized by Portuguese mariners and by 1433 these had descended the west coast of Africa as far as Cape Bojador. Thirty years later, by 1460, the Cape Verde Islands had been discovered and the African coast explored as far as Sierra Leone by the agents of Prince Henry. In 1486, six years, therefore, before the first voyage of Columbus, the Cape of Good Hope had been doubled by agents of the Portuguese Crown and

the way opened to the East Indies by sea, after the capture of Constantinople by the Turks in 1453 had closed the Mediterranean and land route.

Division of America between Spain and Portugal

In consequence of these discoveries, the Portuguese Crown secured from the Pope the right to all lands discovered toward Guinea and the Indies. When Columbus, who had applied in vain to the Portuguese Court for aid in his westward attempt, made his discovery of what he and others supposed to be the Indies, which the Portuguese were seeking by the water route around Africa, Ferdinand and Isabella prevailed upon Pope Alexander VI, a Spaniard by birth, to issue the famous bulls of May 3 and 4, 1493, six months after Columbus landed in America. By this edict the Pope divided the undiscovered portion of the world between Spain and Portugal, drawing an imaginary line one hundred leagues, about three hundred miles, west of the Azores and Cape Verde Islands. Portugal was to retain all her existing possessions, but west of the imaginary line everything was to belong to Spain, a jurisdiction wholly conjectural in extent.

If that line had been retained Portugal would have been completely shut out of the western hemisphere, though at the time nothing was known of the existence of the South American continent. But Portugal was not content with this division of the spoils of exploration, the possibilities of which were still shrouded in mystery, and by force of argument backed by a powerful fleet King John II induced the Catholic Sovereigns of Spain to modify the papal division in the famous Treaty of Tordesillas of June 7, 1494. By this agreement the dividing line was moved westward to a dis-

tance of 370 leagues, some 1,100 miles west of the Cape Verde Islands. This boundary line between Portuguese and Spanish possessions in the western hemisphere gave Portugal a claim to that portion of the subsequently discovered continent of South America lying to the east of the mouth of the Amazon, and so secured a large portion of present-day Brazil to the Portuguese Crown. It remained the legal basis for the division of South America between the two powers for nearly three hundred years, though, as we shall see, it was later modified again in favor of Portugal in consequence of Portuguese and Brazilian explorations, conquests, and settlements in the interior of the continent.

Spain, shut out of the eastern approach to the Indies and assured by the papal edict and the Treaty of Tordesillas of the lands believed to be the eastern shores of Asia, immediately set to work to extend her explorations and consolidate her discoveries. Cuba, Santo Domingo, Jamaica, and even the mainland of Central America, and the coasts of what is now Venezuela were discovered and occupied by the Spaniards within ten years of the first landing of Columbus. Meanwhile, the Portuguese, ignorant of what lands if any lay within their uncertain sphere of activity to the west, concentrated their energies on the eastern route to the Indies. In consequence, Vasco da Gama, doubling the Cape of Good Hope in 1498 reached Calicut on the western shores of southern India.

The Discovery of Brazil

The discovery of Brazil, with the mention of which this chapter opens, was an indirect consequence of this accomplishment of Vasco da Gama, and indeed has

generally been regarded as an accident, at least so far as the particular time and place of its occurrence are concerned. King Manuel, "the Fortunate," was then on the Portuguese throne, and during his reign (1495-1521) Portugal was destined to become the greatest maritime nation of the world, though its area was less than that of our state of Indiana and its population below one million. When he learned of the success of the expedition of Vasco da Gama, he dispatched a fleet of thirteen ships under Pedro Alvares Cabral to proceed to the Indies and support Da Gama in his discoveries and possessions.

This fleet left Lisbon on March 9, 1500, guided by sailing directions furnished by Vasco da Gama. This experienced navigator advised the expedition to sail well to the west in order to avoid the calms encountered off the coast of Africa. In following out this advice, Cabral sailed so far to the west, whether by accident or intent is not clear, that on April 22 of the same year he sighted an unknown land and dropped anchor in a bay which he named Porto Seguro. He supposed that he had encountered a large island and named it the Island of the True Cross (*Ilha de Vera Cruz*), the name by which the new possessions of Portugal were at first known.

Although Cabral's instructions were to proceed to India, he remained for ten days in the Bay of Porto Seguro, later known as the Bay of Santa Cruz, trafficking with the natives and celebrating mass both on one of the coastal islands and on the mainland, which latter he, however, regarded as also an island. This latter ceremony, on May 1, marked the solemn taking possession of the new lands in the name of the Portuguese king. The next day Cabral dispatched one of

his ships to Portugal with the news of the discovery, and proceeded with the rest of his fleet toward the Indies. Two exiles were marooned there, who, together with two deserters, constituted the first colonists in Brazil. But it was a long stretch between this first occupation and the serious settlement of the country.

King Manuel, stirred by the progress of Portuguese fortunes in the East, was little excited by the news sent home by Cabral's ship, of the new discovery, the importance of which was not appreciated even by the discoverer himself. Nevertheless, two expeditions were soon after sent out, in 1501 and 1503, for further exploration of the new lands, both of them accompanied by the Florentine pilot Amerigo Vespucci. The second of these, captained by Gonçalo Coelho, skirted the coast southwards to the present southern limits of Brazil. These voyages, which were for the purpose of exploration and discovery and not for the planting of colonies, were described in the letters of Amerigo Vespucci and led to the proposal subsequently adopted in general practice, to name the new continent "America," a designation that was later extended to include the northern continent as well.

Thus, not only did the natives of this hemisphere become known as Indians, under the misconception that the new lands discovered by Columbus were the Indies, but also the vast continents of the western world came to bear the name not of their discoverer, but of a cosmographer who explored its southern coasts ten years later. By a similar curious transposition, the Portuguese possessions in South America ceased to be known by the authentic names of Vera Cruz and Santa Cruz, and were called Brazil, after

the dyewood known as brazilwood, the most valuable product found in that region by the earliest traders. Of this more will be said later.

During the first third of the sixteenth century, there was noticeable the same difference between the activities of Spain and Portugal in relation to their possessions in the New World that characterized the first decade after the landing of Columbus. Spain made permanent settlements on the islands of the West Indies and from them as a center explored and settled large portions of the mainland. Cortés made his famous conquest of Mexico in the years 1519-1521, the regions of Central America to the south of Mexico were added within the next three or four years, the Pacific Ocean was discovered by Balboa in 1513, and the important trade center of Panama founded in 1519. Francisco Pizarro had by 1533 added the fabulous wealth of the Incas in Peru to the possessions of the Spanish Crown, followed in the next few years by the addition of most of the west coast of South America, while present-day Colombia and Venezuela were at the same time being brought under Spanish control. A beginning of a real colonial empire had been made.

While Spain was busy consolidating these vast and wealthy regions, Portugal was still primarily concerned with her discoveries and possessions in the East. Even after the voyages and descriptions of Amerigo Vespucci had furnished some conception of the vast extent of the continental coast line, Brazil was regarded as useful primarily only as a stopping-place for the Portuguese squadrons proceeding to the Indies. Colonization by Portugal was limited largely to the transportation of exiles in the early years of the sixteenth century.

Early Explorations

Of more importance for the exploration and development of the new possessions were the private expeditions fitted out by Portuguese nobles on their own account. Most of these ventures came to grief, but some of the shipwrecked survivors played an interesting and important rôle in the subsequent development of the country. Two of these, especially, though their early history is clouded in uncertainty, are deserving of mention, as they figure prominently in the later efforts at colonization and conquest. One was Diogo Alvares, sometimes called in addition, Correa, who is supposed to have been shipwrecked on the coast of Bahia in 1510. Whether he was of noble descent as is claimed by some, or whether he was a common sailor as is asserted by others, he is known to have entered into friendly relations with the natives and to have married the daughter of an Indian chief, himself becoming a patriarchal chief of considerable influence and a long activity. He is commonly referred to as *Caramurú*, the name given him by the Indians, the exact meaning of which is also a matter of dispute.

The other figure, also largely legendary so far as his origin is concerned, was João Ramalho, supposed to have been shipwrecked farther south on the coasts of Brazil in 1512. Like *Caramurú*, João Ramalho succeeded in gaining the confidence of the Indians and married the daughter of a native chief, founding a patriarchal establishment on the heights of the Paranapiacaba Range not far from the present site of the city of São Paulo. He occupied a position of considerable influence among the Indians of that region, and his astonishingly numerous offspring constituted

the origin of the so-called *Mamelucos*, who later played so prominent a part in the exploration and conquest of the interior of Brazil.

To these may be added a third, though less well-known figure, that of Duarte Peres, the "Bachelor of Cananéa." The manner and time of his arrival in Brazil are likewise uncertain, but he was found at Cananéa, still farther south along the coast, by the Spanish explorer Rui Díaz de Gúzman. Like the other two this exile furnished material aid in the later serious efforts at colonization.

But these private ventures, unsupported by royal finances or protection, rarely contemplated permanent settlements and more rarely still made any attempts to establish them when they landed. A few forts, and one or two trading posts were all that marked the first thirty years of Brazilian possession. Dom Manuel limited himself to making one or two grants and to promising special concessions to Portuguese who might care to make settlements in Brazil.

One reason why there was no rush of adventurers to the shores of Brazil such as occurred in the early years of the sixteenth century to the Spanish territories in America, was that the early voyages furnished no expectations of the discovery of gold, other precious metals, or precious stones. The chief article of value that was discovered was the dyewood known as brazilwood from which the country soon derived its name. This article did not serve to divert the adventurous Portuguese in great numbers from the pursuit of the spices of the Orient, where greater riches awaited the pioneer.

But if Brazil failed to inspire great enthusiasm in King Manuel of Portugal and his nobles, the same can-

not be said of France. Louis XII had succeeded to the throne of France in 1489 and was in turn succeeded in 1515 by the brilliant Francis I. In their reigns began the activities of French explorers, traders and corsairs that were destined to cause so much trouble in the history of Brazil. From Honfleur and Dieppe came French ships, as early as 1504, establishing friendly relations with the Indians, gathering the valuable dye-wood and even establishing more or less permanent trading posts.

This, of course, was in violation of the strict monopoly established by Portugal in common with the other colonial empires of that and later periods, and, moreover, it threatened even the security of Portugal's right to possession of these new territories, a right based, as has been seen, like that of Spain, originally on papal edict, and later disputed by France, England, and Holland. The continued and successful enterprises of the French served to alarm the Portuguese Court and to induce the king to send a fleet under the command of a Spanish navigator, Cristóbal Jacques, in 1516, to police the coasts and drive out the French and Spanish traders who were infringing on the domains of the Portuguese Crown.

The Spaniards also were well acquainted with the coasts of Brazil, as a result, chiefly, however, of their efforts to discover the sea passage to the East which they felt sure must somewhere cut across the vast continent just being opened up to discovery. Juan Díaz de Solís touched the coasts of Brazil on his voyage of discovery that resulted in his entry of the Rio de la Plata in 1516, already discovered by the Portuguese navigator Nuno Manuel e Christovão de Haro three years before. Likewise a Spanish expedition, though

under the direction of a Portuguese, the famous Fernando de Magalhães, or Ferdinand Magellan as we call him, touched on the shores of Brazil in 1519, examining the bay of Rio de Janeiro as a possible entrance to the desired straits, and later discovering the passage in the strait which bears his name. In 1526 Sebastian Cabot the English navigator, after having sought in vain for a northwest passage and having entered the service of Charles V, the Spanish king, touched in Brazil on his way south.

After the activities of Cristóbal Jacques as captain-major of the coast-guard fleet had demonstrated the futility of French ventures not backed by military force, he was superseded in 1528 by Antonio Ribeiro after establishing one or two posts on the shores of northeastern Brazil. On his return to Portugal he requested of the king, John III, who had succeeded Manuel in 1521, a grant in Brazil, offering to colonize 1,000 settlers there. But the French had been only temporarily repulsed and were now engaged in preparing armed expeditions capable of defending the trading posts established by them in their earliest voyages. In fact such an expedition sailed from Marseilles in December, 1530, for the purpose of establishing a fort in Pernambuco.

Alarmed by the danger of losing his Brazilian possessions and influenced by the report of discoveries of silver in the Plate region, concerning which there was not yet certainty as to whether it fell to Spain or Portugal under the division of Tordesillas, King John III decided to dispatch in 1530 another expedition to Brazil under the command of Martim Affonso de Sousa, as captain-major to succeed Antonio Ribeiro.

This expedition consisted of five ships and was the

most powerful yet sent to Brazil. It had, as was pointed out, a threefold purpose: To verify the existence of silver in the Plate region, to protect the coasts against foreign privateers and traders, and to complete the exploration of the coasts of Brazil and establish colonies thereon. For the latter purpose, which signalized the first serious attempt to settle the country by royal initiative, the expedition included some 400 soldiers and future colonists together with seeds and necessary tools for agriculture.

The squadron left Portugal at the close of the year 1530 and reached Pernambuco in January, 1531. Arrived there, Martim Affonso de Sousa captured three French free-booters and dispatched two vessels under Diogo Leite on a voyage of exploration to the north, in the course of which the coast was reconnoitered as far as the mouth of the Gurupy, nearly to the mouths of the Amazon, therefore, Sousa then proceeded southward along the coast, stopping at the bay of Todos os Santos, now the bay of São Salvador, capital of Bahia, where he made the acquaintance of the Indianized *Caramurú*, mentioned above. Still coasting southward he also entered the wondrous harbor of Guanabara, the later site of Rio de Janeiro, remaining there for three months. Here he constructed several brigs for the purpose of exploring the shallower waters, especially of the Plate, toward which he was ultimately bound. Resuming his journey southward Sousa stopped at Cananéa, where he confided a force of 80 soldiers to Francisco de Chaves, who assured him that there was much gold and silver to be found not far in the interior.

This ill-omened expedition was completely wiped out by the Indians or disease, and, after awaiting in

vain their return, Sousa continued his southward voyage toward the Plate. Opposite the mouth of the Chuy, at the present boundary between Brazil and Uruguay, a violent storm sank his flagship and induced him to turn back, though he sent his brother Pero Lopes de Sousa on to the Plate. He himself sailed back as far as the harbor of São Vicente, near the site of the present seaport of Santos. Here on January 22, 1532, he founded the settlement of São Vicente, the first permanent colony in Brazil, and as his headquarters, the first seat of such governmental authority as he possessed as captain-major (*capitão-mór*) of the coast-guard fleet.

He introduced European fruits and grains as well as cattle, and the sugar cane from the more northern regions, erecting in São Vicente the first sugar mill to be found in Brazil. In this work of colonization he was immensely aided by João Ramalho, one of the earlier castaways we have already encountered, who in the twenty years since his arrival on these shores had become an influential personage among the Indians and had established himself on the mountains back of the coastal plain. To this efficient assistant he granted the territory that was already his and the title of chief warden (*guarda-mór*) of the colony of Santo-André da Borda do Campo, to which colony were added a few of the settlers who had come with Sousa.

The brother of the captain-major had meanwhile proceeded to the Plate River, explored the Uruguay and the Paraná and taken possession of them in the name of the Portuguese Crown, just as Sebastian Cabot had done six years before in the name of Charles V of Spain. He returned to São Vicente

shortly after, and on his way to Portugal to report on the expedition he captured the French fort on the island of Itamaracá in Pernambuco, as well as two French vessels. But his expedition into the Plate region availed Portugal nothing in the long run, for the territories were proved later to be clearly within the Spanish domain as fixed by the Treaty of Tordesillas, had already been possessed by agents of Charles V, and were soon thereafter consolidated by permanent Spanish settlements on the Paraguay.

The Plan of Feudal Captaincies

More than thirty years had elapsed since Cabral's discovery of Brazil, and the two little settlements established by Martim Affonso de Sousa in the region of São Vicente in 1532 represented virtually the only evidence of an attempt at colonization by Portugal. At this point King John III, desirous of assuring the safety of his Brazilian possessions, but unable or unwilling to carry on the expensive and difficult task of settling and protecting the vast areas in Brazil, adopted, on the advice of his counsellor Diogo de Goveia, a new plan of colonization, that of hereditary feudal captaincies to be settled, developed, and governed, by private initiative, instead of by the Crown. This ushered in what may be regarded as the second period of the discovery and settlement of Brazil.

Before describing this new plan it will be well to turn aside for a brief space, to sketch the main characteristics both of the mother country and of the colony at this time. For not only were the conditions prevalent in both regions largely influential in bringing about the adoption of this plan, but they also in turn affected its operation and its subsequent abandonment.

Portugal under the guidance of the able and energetic rulers of the Aviz dynasty, though one of the smallest countries of Europe in respect to area and population, had become one of the most important in point of wealth and colonial extent. Definitely separated from her related and powerful neighbor on the Iberian Peninsula, Spain, now under Charles I, known after 1519 as the Emperor Charles V, apparently at the zenith of her power, Portugal had since the Treaty of Windsor of 1386 enjoyed the friendship of her powerful ally, England.

The power of the monarchy over the turbulent Portuguese nobles had been definitely established. Shorn of their former independence, these nobles, accustomed to almost continual warfare and filled with the religious fervor of the Crusades in consequence of their century-long struggles against the infidel Saracens, were natural-born votaries of discovery, conquest, and extension of the Catholic religion. The order of Jesuits which played so important a rôle in the later history of American colonization, both in the Spanish and Portuguese possessions, as well as in the French expansions in North America, had not yet been founded, though its origin occurred just two years after the period we are now considering, viz., 1534. But representatives of the clergy accompanied all official Portuguese expeditions as well as those of Spain, and the celebration of solemn mass was a regular feature of the taking possession of new lands in the name of the king.

But in spite of the proselyting phase of the system of colonial expansion, the overwhelming concern both of the colonizers and of the Crown was the exploitation of the wealth of the lands discovered, with no

regard to the material welfare of the inhabitants. Slavery had already been established as a regular feature of the extension of Portuguese power in Africa, and in turn both Africa and Brazil, as well as the other colonial possessions, were made the dumping ground of exiles, some of whom were deported for purely political reasons, but many of whom were criminals of the lowest description.

The earlier privileges of the municipalities, secured to them under royal charters known as *foraes*, the counterpart of the Spanish *fueros*, had in Portugal as in Spain been largely absorbed by the absolute monarchy, while the cortes, the representative body of the three estates, had become chiefly a body for voting supplies. The chief occupation of the lower order of inhabitants was agriculture, though in consequence of the flourishing spice trade with the East Indies commerce had made of Lisbon one of the greatest seaports of the world. The golden age of learning and literature was in full swing in Portugal, and the University of Coimbra, moved to that place in 1527 from Lisbon, where it had been founded in 1291, was not only one of the oldest but also one of the most famous of all universities. The Inquisition was introduced into Portugal in 1536, following the expulsion of the Jews in 1496, and had not, therefore, made its appearance at the date we are now considering.

In the Azores and Madeira, the Portuguese Crown had at an earlier date employed the system of feudal or hereditary captaincies, the grantees of which were known as *donatarios*, following the term employed for the grantees of the estates recovered from the Moors during the earlier centuries of expulsion. In view, therefore, of the failure of Portuguese colonization in



Pão de Assucar or Sugar Loaf at Entrance to Rio Harbor.

Brazil during the first thirty years after the discovery of that country, and of the increasing activity of both French and Spanish adventurers, that threatened the subversion of those possessions, the Portuguese King John III naturally turned to a revival of the earlier methods for securing his hold on the transatlantic domain.

The various voyages of exploration had shown the Atlantic coast line to be of enormous extent and difficult of protection against foreign free-booters. Though next to nothing was as yet known about the interior, the narrow coastal plain was recognized as a region of immense fertility, and while lacking in the precious metals and stones which constituted the great attraction to the Spanish explorers and conquerors, furnished many valuable articles of export and was suited to the cultivation of sugar cane and tobacco, both of which plants had become valuable products in the Spanish West Indies. The existence of the coastal range of mountains was, of course, a matter of common knowledge to the explorers of the coast, and at least in the neighborhood of São Vicente, where Martim Affonso de Sousa had established his colonies, this range had been crossed and a glimpse of the great interior plateau obtained. The Amazon had been investigated only at its mouth, which the Spanish explorer Vicente Yañez Pinzón discovered in 1500 and named the *Mar Dulce*, or freshwater sea, Orellana's descent of the entire river not occurring until 1542.

That the new country was pretty thickly populated along its seacoast by dark-skinned aborigines was, of course, known from the earliest voyage of Cabral, and this fact held forth the promise not only of extending the Catholic religion to the benighted heathen, but also,

what was perhaps equally important, the possibility of securing by persuasion or force the necessary manual labor to which the Portuguese nobles were as little inclined as their Spanish neighbors, and for the furnishing of which in sufficient quantities the relatively small number of available immigrants from the peasant classes of Portugal would not have been adequate.

The natives of Brazil, concerning whose language, numbers, institutions, and characteristics, the Portuguese were still at this time almost completely ignorant, though destined to learn a great deal in the subsequent period of active colonization, were in the state of their civilization far below the Aztecs of Mexico or the Quechuas of Peru at the time of the Spanish conquests of those countries. The numerous tribes of the Atlantic seaboard, with which alone the Portuguese at first came into contact, all belonged to the great linguistic group known as the Tupi-Guaraní, whose ramifications covered not only the Atlantic seaboard but also Paraguay and parts of present-day Argentina. They were known by a large number of different tribal names in the different portions of the littoral which they inhabited, but their general characteristics were sufficiently alike to permit of a generic description.

They were of medium build, copper-colored complexion, flowing black hair, with pronounced cheek bones and only a sparse growth of beard. They lived off the products of hunting and fishing, their agriculture being of the most rudimentary sort. Cannibalism was characteristic of nearly all of them. They wore no clothes, and lived in rude huts grouped together in villages or *tabas*. Their principal activity, aside from hunting and fishing, was warfare, their prisoners being

regularly eaten at feasts enlivened by a drink made of the cajú.

They were governed by a warrior chief and by the priests and medicine men, being nature worshipers, especially of the sun and moon, while they feared the thunder and lightning as evil divinities. They were acquainted with the use of vegetable fibers and employed various coloring matters in decoration and the painting of their bodies. Devoted to a rude form of music and dancing, their most important ceremonials were the funerals, for they believed in a life beyond the grave, necessitating for its satisfactory attainment the observance of specified rites.

Of writing they knew nothing, nor had they a calendar, counting the years by the ripening of fruits, their use of numbers not extending beyond four. Their family ties were of the weakest, and private property was virtually an unknown concept, everything belonging jointly to the tribe. Naturally of a ferocious and warlike disposition, their attitude towards the European invaders was determined here, as elsewhere in the New World, rather by the treatment they experienced at the hands of those invaders than by any inflexible characteristics of their own. The best evidence of this in Brazil, as indeed it was on the continent of North America later, was in the success of the French dealings with natives, of whom the Frenchmen in general made friends and allies, while the Spaniards, Portuguese, and English quickly converted them into bitter enemies.

We left Captain-Major Martim Affonso de Sousa, at the beginning of this digression, located in his little colony of São Vicente in the year 1532, when King John III determined to divide the whole of Brazil

into the feudal captaincies as explained above. He did not receive the royal order until the following year, returning shortly thereafter to Portugal and seeking greater fields for renown in the struggles in the Orient.

The basis of the new scheme was very simple. The entire littoral, by this time fairly well known in its main features, was to be divided into twelve hereditary captaincies to be conferred by charter on designated individuals, who then assumed complete responsibility therefor. The general coastal extent of these captaincies was to be 50 leagues, some hundred and fifty miles, their boundaries running west along the parallels to the still unfixed division line between the possessions of Portugal and those of Spain. Some of the captaincies were subdivided so that there were fifteen divisions or lots in all. Martim Affonso de Sousa and his brother Pero Lopes were granted their territories at once, but the charters of most of the fiefs were not distributed until the following year, 1534.

The assignment of territories began in the south at latitude S. $28^{\circ} 20'$, near the present site of Laguna in the state of Santa Catharina, excluding, therefore, the present state of Rio Grande do Sul in Brazil and the territory of Uruguay to which Brazil subsequently laid claim. In the imperfect state of geographical knowledge then possessed about the western continent the exact location of the line 370 leagues to the west of the Cape Verde Islands could not be determined, and while the Portuguese Crown still considered the Atlantic seaboard as far as the Plate estuary to come within its domains, King John avoided difficulties with his Spanish confrère by placing the southernmost extremity of his feudal grants well within the acknowledged extent of the Portuguese possessions.

Three divisions were assigned to Pero Lopes de Sousa, brother of Martim Affonso. The first began at the southern point, S. $28^{\circ} 20'$, in the region known as the Terras de Sant' Anna, and extended for forty leagues north along the coast to the bay of Paranaguá. The captaincy of *Santo Amaro*, also assigned to him, consisted of ten leagues which were shut in on both sides by the possessions assigned to his brother Martim Affonso. The latter was confirmed in his possession of São Vicente, which extended from the bay of Paranaguá for 45 leagues to the São Vicente River at the present site of Santos. " Then beginning again at the river Curupacé or Juquerí-queré as it is now called, where the captaincy of Santo Amaro ended, his territories extended along the coast for another 55 leagues to the Macahé River north of Cabo Frio. This was the second captaincy, counting from the south, and was known as the captaincy of *São Vicente and São Thomé*, chartered on October 6, 1534, of the same date as the charter granted to Pero Lopes de Sousa.

The third captaincy was that of *Parahyba do Sul*, and extended for 30 leagues along the coast from the mouth of the Macahé, where Martim Affonso de Sousa's tract ended, to the mouth of the Itapemirim in the southern part of the present state of Espírito Santo. This tract was granted by charter of February 29, 1536, to Pero de Góes da Silveira.

To the north of this for a distance of 50 leagues along the coast stretched the captaincy of *Espírito Santo* conferred by charter of October 7, 1534, upon Vasco Fernandes Coutinho, extending to the River Mucurí, thus constituting the fourth captaincy geographically from south to north, though as appears from the date of the charter one of the earliest conferred by charter.

The fifth captaincy toward the north was that known as *Porto Seguro*, extending from the Mucurí to Ilhéos in the present state of Bahia. This stretch of 50 leagues included the point on the coast where Cabral had landed in 1500 upon the occasion of his discovery of Brazil, and was granted by charter of May 27, 1534, to Pero de Campo Tourinho.

To the north of this stretched the sixth captaincy, that of *Ilhéos*, for another 50 leagues to the Bay of Todos os Santos, present-day Bahia, as the city is commonly known. This was granted by charter of April 1, 1535, to Jorge de Figueiredo Correa.

The seventh captaincy, destined soon after to become the capital of Brazil, was that of *Bahia de Todos os Santos*, commonly referred to as Bahia, by way of contraction. This was conferred by charter of August 26, 1534, upon Francisco Pereira Coutinho and extended from the great bay north to the mouth of the São Francisco River, some 50 or 60 leagues.

North of Bahia came the captaincy of *Pernambuco*, the eighth in the south-to-north order, extending from the right bank of the São Francisco to a little beyond the River Iguarassú, a distance of 60 leagues along the coast. This captaincy was granted by charter of October 24, 1534, to Duarte Coelho Pereira.

The ninth captaincy was that of *Itamaracá*, constituting one of three parcels granted to Pero Lopes de Sousa by the charter of October 6, 1534. It extended for 30 leagues from the Iguarassú to the Bahia da Traição, including the island of Itamaracá.

From here northward the coast was less known, and three parcels of the captaincy of *Maranhão* were granted by charter of March 11, 1535, to João de Barros, Ayres da Cunha, and Fernão Alvares de Andrade.

Out of these were created the captaincy of *Rio Grande* and the captaincy of *Maranhão*.

The tenth captaincy was, therefore, the captaincy of *Rio Grande*, assigned jointly to João de Barros and Ayres da Cunha, extending northward from Itamaracá a distance of 100 leagues to Angra dos Negros.

From Angra dos Negros a stretch of 40 leagues to the mouth of the Rio da Cruz was granted as the captaincy of *Ceará* by charter of November 20, 1535, to Antonio Cardoso de Barros, thus constituting the eleventh captaincy.

And finally, the twelfth captaincy was that of *Maranhão*, which included the stretch granted to Fernão Alvares de Andrade, 75 leagues to the westward along the coast to the Bay of São Marcos, and 50 leagues farther along the coast, granted jointly to João de Barros and Ayres de Cunha.

It has seemed worth while to indicate this earliest division of Brazil into feudal captaincies, not merely because in a measure the divisions so outlined are the geographical background of the extent of the seacoast states today, but also because, although the early captaincies are always mentioned and frequently named in every résumé of Brazilian history, no matter how brief, they are almost never described with sufficient detail so that the general reader can place them properly on a modern map of Brazil, or trace their gradual evolution into the corresponding provinces in the empire and their successors, the states in the federal republic of today.

Each of the charters granting these captaincies established its own special conditions as between the grantees and the Crown, but the main features were so similar as to permit a description of the system as

a whole. They were hereditary and irrevocable fiefs, granting to the *donatarios* almost sovereign rights. They had an almost unlimited judicial jurisdiction in criminal and civil affairs; they had the right to found cities and other settlements, delegating to them the necessary powers of local government; and they enjoyed the right of distributing the land to colonists, called *sesmeiros* or owners of *sesmarias*, as the subgrants were called. The *donatarios*, moreover, enjoyed the power to enslave the native population and all powers of taxation and tribute, both ecclesiastical and temporal. The Crown reserved to itself only certain definitely specified imposts, such as the fifth of the precious metals and stones, the monopoly of the export of brazilwood and spices, and the tithe on all other products. For a distance of 100 leagues, some 300 miles, back from the coast, the grantee enjoyed the fee-simple free of all obligations except the tithe.

To encourage immigration, augmented in the natural course of events by exile and proscription, the right of asylum was extended in the captaincies to all offenders except traitors and counterfeiters, and residence in the colonies carried with it proscription of penalties incurred in the mother country. No part of the captaincy could be alienated but was to descend by the regular process to the heir of the grantee.

The Failure of the Plan of Feudal Captaincies

But promising as this method of colonization seemed to both parties, since the Crown was relieved of all expense in the settlement and protection of its new possessions, the *donatarios* being bound not only to colonize the captaincies but to defend them against foreign aggression, and since the grantees became

virtually feudal lords of vast possessions, far removed from the eye of their royal overlord, it turned out to be an almost complete failure from every point of view. And this was notwithstanding the fact that virtually the same system had in practice produced the desired results in other parts of the Portuguese possessions.

The extent of this failure is best summarized in the statement that of the twelve captaincies, only two, São Vicente and Pernambuco, permanently prospered. Some of them never even received a single settlement. This was true of the southernmost stretch known as the Terras de Sant' Anna, and of Ceará, in neither of which regions was any attempt made at colonization. In others the very first expeditions resulted in disaster and caused the abandonment of the enterprise. This was the case with the captaincies of Rio Grande do Norte and Maranhão. In still others initial attempts at colonization met with some measure of success, only to be soon afterwards wiped out through a variety of misadventures. This was the case in Parahyba do Sul and Espirito Santo, where the hostile Indians presented insurmountable obstacles to the success of the undertaking. The same was true of the captaincy of Porto Seguro, and of its neighbor to the north, Ilhéos, though in both cases one or two settlements were established on the coast and managed to preserve a precarious existence until the new measures adopted by the Crown in the succeeding period of the era of settlement put them on a firmer basis.

The captaincy of Bahia de Todos os Santos seemed to promise a more successful future, by reason of its splendid harbor, its broad stretches of fertile seaboard, and above all the friendly character of its

Indians. It was here, it will be recalled, that the Portuguese castaway, Diogo Alvares Correa, known to the Indians as *Caramurú*, had acquired a position of influence with the natives as a result of marrying the daughter of one of the prominent chiefs. He used this influence at first to assist Francisco Pereira Coutinho in his work of colonization. But the latter by reason of his excesses and those of his followers converted the Indians into bitter enemies, and, after being driven out of his possessions by force, he was on his return shipwrecked and devoured by the Indians, a fate which was experienced by more than one of the early Portuguese adventurers. In consequence this captaincy was bought back from his son by the Crown, which then made it the seat of the general government of Brazil later established.

Even São Vicente, the earliest and most promising of the captaincies, was not developed by the donatario himself, Martim Affonso de Sousa, who sought further glories in the East Indies and left the colony in the hands of his representative, Gôngalo Monteiro, while the captaincy of São Thomé, also assigned to him, was resumed by the Crown during his lifetime still. Ultimately, in fact, all of the original feudal captaincies reverted to the Crown, by reason of purchase, confiscation, or simple abandonment, three of them still in the sixteenth century and the remainder in the succeeding ones.

Without going into further detail concerning the melancholy history of these feudal captaincies, several main reasons can be discovered for the failure of the system instituted with regard to them. Chief among these may be mentioned (1) the great extent of their territories and the difficulties of intercommunication,

making it impossible for them to extend mutual aid to each other in case of attack; (2) the provision for complete inter-independence, weakening the whole structure and encouraging local anarchy; (3) the fearful composition of the elements that contributed to the population, from some of the donatarios themselves down through their lieutenants and the rank and file of the colonists, which by their cruel, unruly, and jealous characters embittered the Indians, plotted against each other, and failed to establish on the seaboard centers of population capable of repelling the attacks of the French and other freebooters; and (4) the lack of resources of the grantees which prevented them from hastening the development of their grants and from waiting patiently for the fruits of their labors. Of other causes contributing to the failure of the plan it is impossible to speak.

The French privateers and freebooters continued their voyages to Brazil, after the establishment of the feudal captaincies as before, choosing for their activities by preference the unsettled portions of the coast towards the south. By reason of their successful policy with the natives they established trading posts and carried on a lucrative commerce in disregard of the monopoly decreed by the Portuguese Crown. By this means Brazil and its vast possibilities came to be well known in France, and already the French Crown was entertaining the idea of not merely trading with Brazil but of gaining a foothold for permanent occupation in that region. On May 12, 1548, Luiz de Góes wrote from São Vicente to John III, "Come to our assistance: Shortly this country will be lost to the French, who will then take Africa and will proceed to attack Portuguese Asia; and if these prophecies do

not move you, have compassion and pity for the many Christian souls in this country."

In the year in which this appeal was written, almost half a century after the discovery of Brazil, and fifteen years after the division of the country into feudal captaincies, only fifteen small settlements had been established along the fifteen hundred miles of coast line from São Vicente to the Island of Itamaracá. The total population of these settlements at that time cannot be ascertained with accuracy, but though they were all very small, their exports to Portugal, the only market open to them, included not only natural products of the forests and fields, but also sugar, cotton, and tobacco.

The Governor-General

Convinced of the failure of his scheme of independent feudal captaincies and alarmed at the growing activity of the French freebooters, John III determined in 1548 to supersede this plan by the establishment of a central governmental agency, to unite all of the captaincies under one royal agent to be known as Governor-General directly responsible to the Crown, with a considerable measure of control over the activities of the governors of the captaincies. As this undertaking marks both the end of the period of discovery and settlement and the beginning of the colonial period proper, its inauguration will be described here, leaving to the next chapter the examination of its consequences.

By royal commission of December 13, 1548, John III appointed as the first governor-general of Brazil, Thomé de Sousa, major domo and noble of the Royal House, who had distinguished himself in Africa and

India. He was to proceed to Brazil to settle the country and convert its inhabitants to the Catholic faith. For that purpose he was to establish himself in the captaincy of Bahia, purchased by the Crown from the son of the original donatario, Francisco Pereira Coutinho, who had met so tragic a death at the hands of the Indians, and to take the proper measures for making it the chief of all the other captaincies. From this came its designation as the Royal Captaincy and also the position of capital which the city of São Salvador, founded on the bay of Todos os Santos upon his arrival, occupied for more than two centuries.

Together with the appointment of Thomé de Sousa as governor-general, there occurred by similar instruments the appointment of a commissioner-general of finances (*provedor-mór da Real Fazenda*) to regularize the administration of finances in Brazil, of a chief justice (*ouvidor-geral*) as supreme judicial officer, and of a captain-major of the coast to patrol and defend the coast. For these important posts were chosen, respectively, Antonio Carroso de Barros, original grantee of the captaincy of Ceará, Pero Borges de Sousa, and Pero de Góes da Silveira, original donatario of the captaincy of Parahyba do Sul.

The powers and functions of the first three of these officials were described in great detail in the instructions contained in their letters of appointment, and though within their respective spheres largely independent, together they constituted the governing body of Brazil under the leadership of the governor-general. The feudal donatarios or their legal heirs were left in possession of their grants for the time being, though ultimately all of these reverted to the Crown, but their judicial and financial independence was de-

stroyed and they were made directly responsible to the governor-general and his colleagues.

On February 1, 1549, Thomé de Sousa sailed with his expedition from Lisbon. In comparison with all prior expeditions this was a signal undertaking, comprising six ships with an equipment of more than a thousand men, including soldiers, exiles, colonists with their wives, clergy, and officers of administration. Not the least important among the passengers were six Jesuit priests under the command of Father Manuel da Nobrega, who with their successors proved a most vital factor in the development of the country, as will appear in the course of the narrative. The Order of Jesus had received the recognition of Pope Paul III in 1540 and had recently established in Portugal the first Jesuit College in existence.

After a journey of nearly two months the fleet arrived at the Bay of Todos os Santos on March 29, 1549. The site of the old fort of Coutinho on the seashore was recognized in the royal instructions as unsuited to the location of the new capital, so in the first six months after his arrival Thomé de Sousa built a whole new city on the side of the narrow promontory facing the bay. The earlier location continued to be known as the Villa-Velha, or ancient city, and continued to be inhabited by the patriarch *Caramurú* and his people, after the rest had been transferred to the now completed city of São Salvador.

Here, with the most impressive ceremonies, Thomé de Sousa and his colleagues on November 1, 1549, formally assumed office as governor-general and other officials of Brazil, with which ceremony we may fittingly close the consideration of the first major period of Brazilian history.

CHAPTER III

THE COLONIAL PERIOD

THE second great era of Brazilian history, beginning with the advent of Thomé de Sousa as first governor-general in 1549, described at the close of the preceding chapter, extends through a long period of more than 250 years to the year 1808, when Prince John, regent of Portugal, transferred the Portuguese Court to Brazil and in effect reversed the positions of Portugal and Brazil as mother country and dependency.

In dealing with so extensive a period of years within the narrow confines of a brief chapter, most details, even those of considerable interest, must necessarily be omitted, and only the more significant events and developments be noted. For purposes of convenience, the colonial period will be considered under four major divisions, which though, like all historical divisions, merging in many respects one into the other without any definite break, yet present certain major developments and characteristics. The divisions adopted for this purpose are the following: (1) From the establishment of the central government in Brazil to the dominance of Spain over Portugal in 1580; (2) the sixty years of that dominance lasting until 1640; (3) the century of expansion into the interior and growth of a Brazilian national feeling, from 1640 to 1750; and (4) the last period ushered in by the administration of the Marquis of Pombal as prime minister of King Joseph I.

Brazil from 1549 to 1580

We left Thomé de Sousa on the occasion of his formal assumption of authority as first governor-general on November 1, 1549, in the new city of São Salvador, constructed by him during the preceding six months. His appointment was only for three years, though in fact it lasted more than four years, until July, 1553, when as a result of his repeated urgings and requests he was superseded by the second governor-general. But in the relatively short time of his administration Thomé de Sousa accomplished much for the progress of the vast domain of which he was put in charge.

He marked out the boundaries of the new municipality, appointed a mayor (*alcaide-mór*), a senate (*senado da camara*), and a governing council elected by the "good men" of the city, in accordance with the instructions contained in his commission, and on the model of the municipalities in Portugal. Within the captaincy of Bahia de Todos os Santos, he defined the existing grants (*sesmarias*) and issued new ones abutting on the bay and in the interior. He encouraged the breeding of cattle from the stock brought in from the Cape Verde Islands, laid out plantations, erected sugar mills, established river and coastal navigation, and erected a shipyard for the construction of trading and fighting vessels. Together with the commissioner of finances and the chief justice he visited the captaincies to the south, encouraged and aided their donatarios, fortified the coast, and founded new settlements.

In this work he was aided signally by the energetic Jesuits under the leadership of the indefatigable Manuel da Nobrega. At the solicitation of the latter

there arrived in Bahia on June 22, 1552, the first bishop of Brazil, Pedro Fernandes Sardinha as suffragan of the archbishopric of Lisbon. Prior to that time Brazil had been under the ecclesiastical jurisdiction of the Bishopric of Funchal, created in 1514, the lands having been considered up to then as under the control of the Order of Christ, of which the king was grand master in Portugal. For other purposes of colonial administration there existed in Portugal at this time, aside from the inspector of finances (*Fazenda*), the *Mesa de Consciencia e Ordens* or board of conscience and orders, a body with both ecclesiastical and financial administrative duties, created in 1532. Prior to the establishment of the bishopric of Brazil, only *villas* or towns could be founded there, but thereafter with its ecclesiastical independence established, the rank of *ciudades*, cities, could be conferred upon the towns that were destined for the seats of bishoprics. So São Salvador da Bahia became not only the first capital of Brazil, but also the first to bear the designation of *cidade*.

The general basis of the civil law in Brazil at this time was found in the general code known as the *Ordenações Manuelinas* compiled in 1521, modified somewhat by the terms of the feudal donatarios and the orders and instructions given in 1548.

With the new bishop in 1552 arrived four more Jesuit priests, among them the celebrated José de Anchieta, later known as the "Apostle of Brazil," because of the remarkable influence he obtained over the Indians by his missionary activities.

In May, 1553, in response to the repeated pleas of Thomé de Sousa, King John III of Portugal appointed as second governor-general of Brazil, Duarte da Costa,

who arrived in Bahia and assumed charge on July 13, of the same year, remaining in charge until 1558, when he was succeeded by Mem de Sá. Duarte da Costa was far from being as able a man as his predecessor, Thomé de Sousa, and the five years of his administration probably did the new colony more harm than good, owing to his violent and autocratic disposition. Hardly had he assumed the duties of his new office when he became involved in a bitter controversy with the bishop of Bahia. Before long the infant capital was divided into two hostile camps, one of which sided with the governor-general, temporal chief of the colony, and the other with the bishop, its spiritual head. The controversy was not finally terminated until the recall of the bishop by the king in 1556, the unfortunate prelate being shipwrecked on his journey to Portugal on the coast of the present state of Alagoas and killed by the Caetés Indians.

The internal dissensions caused by the arbitrary governor-general had the further unfortunate effect of aiding the French in their designs upon Brazil. During the reign of Francis I, who died in 1547, a number of large trading expeditions to Brazil had, as we have noted, been undertaken by private initiative with royal favors. But under his son, Henry II, mere contraband trading was superseded by ambitious plans for establishing an "Antarctic France" in the possessions of Portugal, in violation of the five years' truce signed by the French king with John III of Portugal, by which the former agreed not to sanction piratical excursions against the Portuguese dominions.

Amidst the greatest secrecy regarding its destination and purpose, a fleet comprising 600 soldiers and colonists sailed from Havre in August, 1555, under the

command of the intrepid Vice-Admiral Nicolas Durand de Villegagnon. This expedition was nearly three months in arriving at its destination, the Bay of Guanabara, the site of the later city of Rio de Janeiro. Though this wonderful natural harbor had been occupied for three months by Martim Affonso de Sousa in his great voyage of exploration of the Brazilian coast in 1531 no settlement had been made there, and the French with more foresight determined to make this the center of their schemes of conquest. Arrived on November 10, 1555, Villegagnon established himself on the island in the bay which today bears his name, and after building strong fortifications and winning the friendship of the warlike Tamoyos, founded on the mainland the settlement of Henryville, as the future capital of Antarctic France. Under Villegagnon's able administration the French colony flourished and requested three or four thousand additional settlers. Instead of these, however, the Protestant admiral of Henry II, Coligny, sent some three hundred Huguenot colonists of both sexes, with Calvinist preachers, in 1557, as a result of which so much dissension was stirred up in the colony that the new arrivals were sent back to France in the following year. Villegagnon himself, out of favor with the French Court, returned to France in 1559 to defend himself against attacks and to push the success of his venture, leaving the French colony under the command of his nephew, Bois le Comte.

While these events were threatening the security of Portuguese dominion in Brazil, another development of less immediate but more lasting significance occurred in the captaincy of São Vicente on the western slopes of the Coastal Range. This was the founding on January

25, 1554, of the Jesuit College of São Paulo, the name subsequently given to the settlement that grew up by it, and later to the captaincy that was established and the province and present state that succeeded it. In the year before that, Ignatius Loyola, Father Superior of the Order of the Jesuits, had erected Brazil into a province of the Society of Jesus under the direction of the venerable Father Manuel da Nobrega, the same who had arrived in Brazil at the head of the small company of six Jesuits that accompanied the first governor-general in 1549. The history of the Jesuits in colonial Brazil is so intimately bound up with the history of the country in general that it is not feasible to consider it by itself. It will, therefore, be followed only in connection with the other major events to which it bore an important relation. Suffice it here to say, that in the conversion of the natives, which was avowedly one of the major objects of Portuguese activities in the New World, the Jesuits played an all-important rôle, arousing the antagonism not only of the colonists but often of the regular clergy as well.

The unfortunate administration of Duarte da Costa as governor-general was succeeded by one as fruitful as his was barren. This was the administration of Mem de Sá, 1558-1572, of whom the historian Varnhagen says: "By him Brazil was saved." He was appointed in 1556 by John III, who died the next year. His major achievements can be classed under three heads, the establishment of law and order within the captaincies, the subjugation of the hostile Indians and their conversion and protection in coöperation with the Jesuits, and the shattering of the project for an Antarctic France in the southern portion of Brazil.

The French colony on Guanabara Bay, though weak-

ened by internal dissensions and without their intrepid leader, Villegagnon, by their alliance with the powerful Tamoyos still threatened Portuguese supremacy in Brazil when Mem de Sá reached Bahia. He insistently demanded of the home government reinforcements for the purpose of driving out the French. In November, 1559, a fleet arrived for this purpose in Bahia under the command of Captain-Major Bartholomeu de Vasconcellos da Cunha, and Mem de Sá at once raised an attacking force of soldiers and friendly Indians. After an attack lasting several days, the French were compelled to abandon the island by lack of food and water, and escaping to the mainland sought refuge with their Indian allies. Mem de Sá, lacking sufficient forces to keep possession of the fortress, razed it to the ground. This, however, was only a temporary victory, as after the departure of the Portuguese the French returned to the island and restored the fort.

Upon his return to Bahia, Mem de Sá reported to the home government the urgent necessity of founding a city on the Rio de Janeiro, as the bay of Guanabara had been named by the earliest Portuguese discoverers. Word of the fate of the French colony had at the same time reached the court of France, where Henry II had been succeeded in 1559 by his son Francis II, who reigned but a year, and was followed by his ten-year-old brother, Charles IX. The indignation at the French Court was great and plans were immediately laid for the dispatch of a powerful fleet, but fortunately for the Portuguese, the religious wars that broke out in France just at this time withdrew the attention of that country from her promising foothold in Brazil.

Meanwhile the French under Bois le Comte, sup-

ported by the powerful Confederation of the Tamoyos, carried on an offensive war with the Portuguese in Santo Amaro and São Vicente. Due to the invaluable aid of the Jesuits, Manuel da Nobrega and José de Anchieta, the Portuguese succeeded after a bitter struggle in concluding a truce with this Indian Confederation which cleared the way for another attack on the French colony and its extermination. In 1564 another fleet arrived from Portugal under the command of Estacio de Sá, nephew of the governor-general, and a powerful expedition established itself in March, 1565, within the Bay of Guanabara. A fort and small settlement were established, later known as the *Cidade Velha*, and with the assistance of a large number of Indians under the command of the governor-general, the French were finally, in January, 1567, completely routed, though Estacio de Sá received a wound from which he died the following month.

During the succeeding year Mem de Sá moved the site of the fortification and City of São Sebastião do Rio de Janeiro, as it was called, from the first location to the hill of São Januario, later known as the Morro do Castello, the very hill which during 1923 was in the process of being razed for the purpose of making more room for the business center of the modern city. As governor of the new city, Mem de Sá left another nephew, Salvador Correa de Sá.

Returning to Bahia, Mem de Sá, advanced in years and tired out with his strenuous labors, insisted upon being relieved of his burdensome office. But in the five years he still remained at the head of the colonial administration he continued his fruitful labors, stimulating the introduction of new colonists, making new grants, pacifying hostile Indians, and aiding the efforts

of the Jesuits in establishing their missions for the conversion and instruction of the friendly ones. Through the efforts of the Jesuits, a royal order of 1570 had forbidden the enslavement of the Indians, save such as were captured in a just war, and this measure, together with the protection which the Jesuits extended to the Indians over against the colonists, as well as the disapproval by the members of that order of the excesses and license of the colonists and many of the regular clergy, brought them into a disrepute, which in spite of their signal services in the colonization and pacification of the country later led to their suppression and final expulsion.

In the same year, 1570, the Crown, yielding to the insistent demands of Mem de Sá, appointed as his successor Luiz de Vasconcellos. But his fleet of seven or eight ships, bringing 69 more Jesuit priests, was scattered by storms and captured by two Huguenot corsairs who destroyed the entire fleet and massacred all aboard. In his place was appointed Luiz de Brito e Almeida, who reached Bahia on March 2, 1572, a few days before the death of Mem de Sá.

But by this time the Portuguese Crown had become convinced that the extent of the possessions in Brazil was too vast to be governed from one center. It was also desirous of pushing the settlement of the captaincies in the north, which up to this time had lain in practically complete abandonment. So by order of December 10, 1572, the country was divided into two captaincies-general, that of the north with Bahia as capital, and that of the south with Rio de Janeiro as capital. The southern captaincies, in which practically all of the settlement and development had occurred, had by this time reverted to the Crown, and over them was

put Antonio Salema. The northern captaincies, beginning at Porto Seguro, were put under the control of Luiz de Brito e Almeida, who had previously been named as governor-general of the whole of Brazil.

The attempts at extension of Portuguese dominion north of Bahia proved abortive, though the governor-general of the south was more successful in his campaigns against the Indians. But the plan of a divided authority in Brazil was not considered a success, and in 1577 the home government again united the whole country under the governor-general of Bahia, Luiz de Brito e Almeida, who was succeeded in the following year by the fifth governor-general of Brazil, Lourenço da Veiga. He held office until 1581, after the end of the period we are now considering.

Prompted by like considerations, the Holy See in 1576 divided Brazil into two ecclesiastical provinces. The seat of one was in Bahia under the immediate jurisdiction of the bishop, and the other was in the city of Rio de Janeiro, known as the prelacy of the southern captaincies.

The Period of Spanish Domination, 1580-1640

In 1578 King Sebastian of Portugal was killed on the field of battle by the Moors, at Alcacer-Kibir. As Sebastian had no direct heirs, the Crown descended to his uncle, the aged Cardinal Henry, who died the same year. Another churchman, Antonio, Prior of Crato, aspired to the throne, but his pretensions were easily overcome by the ambitious Philip II of Spain, who had succeeded his father Charles V in 1556. Philip II was the grandson on his mother's side of King Manuel, and he embraced the opportunity thus offered of uniting the whole of the Iberian Peninsula under the

Spanish Crown. By force of arms and by intrigue, therefore, he succeeded in inducing the Cortes to recognize him as King of Portugal in 1580.

The chief significance of the period of Spanish domination over Portugal that lasted until 1640, from the point of view of Brazilian history, lies in the fact that Brazil as an outlying possession of Spain became the object of attacks by the enemies of Philip II and his successors, especially by the French and the Dutch. At the same time, during this period, notable extensions were made in the occupation of the country to the north, prompted, as in the case of the country around Rio de Janeiro, by the danger of French occupation.

At this time the northernmost outpost of Portuguese occupation was in the captaincy of Itamaracá, where there was the little settlement of Conceição on the island of Itamaracá, with three sugar mills. In Pernambuco, the only feudal captaincy to prosper in the north, there were two flourishing settlements, Olinda and Recife, which more than a century later engaged in an actual warfare on account of their rivalry. At this early date, there existed already 66 sugar mills in the captaincy and its annual revenues amounted to 49,000 *cruzados*. In the captaincy of Bahia, the seat of government, the population was estimated at 16,000, the capital São Salvador, though having but 800 free inhabitants was flourishing and growing rapidly, boasting at this period 16 sugar mills producing 120,000 *arrobas* of 32 pounds each, a year. To the south of Bahia, Ilhéos was in a state of decay owing to the hostility of the Aimoré Indians, having only three plantations and 50 colonists. The same was true of Porto Seguro, containing but one settlement,

Santa Cruz, with 40 settlers, and two Indian villages. Espirito Santo contained 150 colonists, with six sugar mills, some cotton plantations, and numerous herds of cattle. Here the Jesuits were signally successful in the reduction and conversion of the natives. Rio de Janeiro, Santo Amaro, and especially São Vicente with its important settlement of São Paulo were progressing with great rapidity.

From these centers of population, expeditions began to be undertaken into the interior in search of precious metals and stones. Though a number of such expeditions, "entradas" as they are called, were made even before the period of Spanish domination, and a great many more occurred during the sixty years of that domination, no very striking results were obtained either in the discovery of mineral wealth, or in the extension of the zone of occupation into the interior until after the separation of Portugal from Spain had again taken place. But along the seacoast the work of pacifying the hostile Indians went on with considerable though varying success, and by the beginning of the 17th century, a fairly complete intercommunication, by land as well as by sea, had been established between the principal centers of population along the coast, from São Vicente on the south to Pernambuco on the north.

The occupation of the region north of Pernambuco, totally neglected by the original donatarios and attempted without success by the governor-general of the north, Luiz de Brito de Almeida, during the brief separation of Brazil into two parts from 1572-1577, was now undertaken with new vigor. After bitter struggles with the Indians and the scattered French freebooters who still carried on their traffic in these

regions and lined the natives up on their side, Parahyba, Rio Grande do Norte, and Ceará were conquered and colonized in the years from 1584-1603. But the further extension of Portuguese power along the northern coast line of Brazil was again the result of French attempts at securing a definite foothold in the north of Brazil, after their scheme for Antarctic France had been definitely checked by the capture and settlement of the Rio de Janeiro region.

As early as 1594, the celebrated French corsair, Jacques Riffault, had landed in Maranhão and a regular trade had been built up between that region of Brazil and Dieppe. To the able and energetic king now on the throne of France, Henry IV, the project of establishing an Equinoctial France in the north of Brazil, to replace the lost Antarctic France in the south, made a special appeal. He granted, therefore, to Daniel de la Touche, seignior of la Ravardière, fifty leagues of the coast line of Maranhão and promised his support in the colonization of the new domains. Happily for the Portuguese, however, the assassination of Henry IV in 1610, before definite steps for the conquest and colonization had been taken, removed this energetic supporter of the new plans of French colonization in Brazil. The queen-regent, Mary de Medici, though renewing the grant to la Ravardière, furnished no material aid. The expedition that left France in 1612 was, therefore, financed and supported by private means, though sanctioned by the French Court. The French established a fort and colony on the island of Maranhão, which they called St. Louis, in honor of the French King Louis XIII, a name it still bears today in its Portuguese form, São Luiz. They then sent one of their three ships back to France for colonists and

material aid promised by the Crown. Some 300 colonists were brought over in the next voyage, but the help which the government had freely promised failed wholly to materialize.

While from São Luiz as a base the French were carrying on explorations on the mainland, particularly with a view to occupying the mouths of the Amazon, a Portuguese expedition under Jeronymo de Albuquerque, a *mameluco* or half-breed, set out with four ships, 100 whites, and a large number of Indians, to expel the French invaders, in 1613. After an unsuccessful attack by the French in 1614, a truce was declared while emissaries were sent to the Courts of France and Spain to come to some agreement as to the conflicting claims of the two countries. But meanwhile strong Portuguese reinforcements arrived on the scene and, ignoring the truce, they besieged the French and compelled them to surrender on November 4, 1615.

From São Luiz as a base the Portuguese then sent an expedition to found a fortified settlement at the mouth of the Amazon. As this expedition started on Christmas Day, 1615, the new outpost was named Belém, Portuguese for Bethlehem, which name is borne to this day by the metropolis at the mouth of the Amazon. Thus terminated definitely the last hope of France for an empire in Brazil and the French were driven back to Guiana, their sole possession on the mainland today.

The French were not the only foreigners under whose depredations the coasts of Brazil suffered during this lawless period. The Protestant Queen Elizabeth was then on the throne of England, 1558-1603, and though not openly at war with the Catholic Philip II

of Spain, she was in continual danger from the plots of the Spanish monarch against her power. So the English buccaneers not only infested the Spanish Main and captured the treasure-laden galleons from the Americas, but during the dominion of Spain over Portugal descended on the coasts of Brazil, then a part of the Spanish empire in America. Fenton attacked Santos in 1583, Wirthington assaulted Bahia in 1587, both without success, however, while in 1591 Cavendish was more successful in sacking the flourishing port of Santos. Sometimes the English instead of attacking alone were allied with French or Dutch freebooters, but none of these enterprises did more than harass the coasts and shipping of Brazil. Permanent conquest and settlement were not within their scope, and their effect was purely temporary.

Not so with the attacks directed by the Netherlands against Brazil. For some years, it is true, the Dutch traders and freebooters carried on merely a contraband traffic with Brazil or made sporadic attacks upon her seaports. After the United Provinces of the Netherlands had declared their independence of Spain in 1581, and the destruction of the "Invincible Armada" in 1588 by the English had removed the danger of a reconquest by Philip II, these attacks became more frequent and annoying. But when after the death of Philip II in 1598 Spain, exhausted by her continuous wars and her ruinous internal policy, sank to the rank of a secondary European power, the way was opened to the energetic Dutch to undertake the conquest from their former master and oppressor, Spain, of the outlying possessions of that country.

Stimulated by the success of the Dutch East India Company, the Netherlands, under a long truce con-

cluded with Spain in 1609, organized in 1621 the Dutch West India Company, destined to operate in Africa and America. This powerful organization was authorized by the States-General, in addition to its trading rights, to establish forts, conclude treaties with the Indians, and appoint governing authorities. Two years later, in 1623, this Company began preparations for a powerful expedition to attempt the conquest of Brazil.

On the 8th of May, 1624, there appeared at the harbor mouth of the Bay of Todos os Santos, on which was located São Salvador, capital of Brazil, a Dutch fleet of 26 vessels under Admiral Jacob Willekens and Vice-Admiral Piet Heyn, mounting 500 cannon and comprising 1,500 sailors and 1,700 soldiers. Though both the home government and the colony had gotten wind of this powerful attacking force, Bahia was put into no adequate condition of defense, and on May 10 the victorious Dutch took possession of the capital and made a prisoner of the governor-general, Diogo de Mendonça Furtado. Mathias de Albuquerque Coelho, brother of the donatario of Pernambuco, was next in line of succession to the governor-generalship, but he was in Pernambuco, so the inhabitants of Bahia, most of whom had fled the city on the approach of the Dutch, selected as governor pro tem the bishop of Bahia, Marcos Teixeira. This able and energetic churchman directed the guerrilla operations of the dispossessed Portuguese with great vigor, but the forces and weapons at his command were insufficient, even with the help of some reinforcements from Pernambuco and a small fleet from Spain, to drive out the invaders. But at last, the Spanish Court, bankrupt and enfeebled though it had become, realized the serious

menace of the Dutch invasion and dispatched a fleet of 52 warships and more than 12,000 men to the relief of Bahia, arriving there on March 29, 1625. On April 30 the Dutch forces, already greatly weakened by the siege that had been going on for nearly a year, capitulated, and the next day the Spanish admiral with his forces entered the city. Twenty-six days later appeared the relief fleet of Hendrikszoon with 34 ships, but too late. The vanquished Dutchmen attempted an occupation in the north at the Bay of Traição, but were soon driven out. Two years later Piet Heyn returned and twice sacked the city of Bahia, without, however, taking permanent possession. In the following year he distinguished himself by capturing in the Caribbean the Spanish silver squadron, which netted a booty to the Dutch West India Company of 14,000,000 florins, or double the initial capital of the enterprise.

Thus compensated for the failure of the first Brazilian expedition, the Company did not tarry in launching a second attack on Brazil, this time against Pernambuco, the most flourishing of the northern captaincies. With a fleet of 65 ships and 7,300 men, Admiral Lonck arrived at Pernambuco on February 13, 1630, and within a few days captured the ill-protected and poorly garrisoned cities of Recife and Olinda. Thus began a 24 years' occupation of northern Brazil by the Dutch, the termination of which falls into the next division of this chapter, after Portugal had again become separated from Spain.

Against the never-ceasing resistance of the dispossessed Portuguese, aided by their Indian allies, and but feebly strengthened by help from the home government, the Dutch made but little headway and were virtually restricted to their seaboard capture for two

years. In fact the leaders of the enterprise were seriously considering its abandonment, when the defection of a mulatto named Domingos Fernandes Calabar changed the entire situation. He was a bastard contrabandist of great audacity and capacity and with a complete knowledge of the surrounding country. By his aid the discouraged Dutch were able to extend their conquests in 1632 greatly to the north.

On January 27, 1637, there arrived as governor of Dutch Brazil, the famous Prince Maurice of Nassau-Siegen. He was in all respects a remarkable man, not only as a military leader but also as administrator, and in the seven years of his rule Dutch Brazil, which came to include all of that country from the River Real in northern Bahia to the Gurupy in Maranhão, progressed in many respects beyond all the rest of the country. His departure in 1644 marked the beginning of the end, as we shall see, of Dutch occupation in Brazil.

While the attacks by the English, French, and Dutch upon the Brazilian possessions of Philip II and his enfeebled successors were the outstanding features of the "sixty years' servitude" of Portugal, they were, of course, not the only events of significance. The Portuguese *Ordenações Manuelinas*, published in 1521 for the internal administration of the colony were superseded by the *Ordenações Philippinas*, promulgated by Philip III, which altered in many important respects the system of local government, establishing a greater measure of local autonomy for the municipalities. In the home government the Inspector of Finances was replaced by a Council of Finance (*Conselho da Fazenda*) and in 1604 there was created a Portuguese Council of the Indies (*Conselho da India*), on the

model of the Spanish Council of the Indies, established a century earlier. Most of the changes introduced by the Spanish government continued after the separation of Portugal from Spain in 1640.

In the colonial administration of Brazil, Spain again experimented with the device of separate governments for the north and the south of Brazil, but the attempt lasted only five years, 1608-1613, on which latter date the single governor-generalship was again reëstablished. In 1621, as a result of the final expulsion of the French from the northern coasts of Brazil, the separate State of Maranhão was created, directly responsible to the home government, which was not definitely reincorporated into the larger unit until towards the end of the next century. Up to the close of the Spanish domination in 1640, Brazil had had seventeen governors-general. The last one appointed by Philip IV of Spain in 1640 was Jorge de Mascarenhas, Marquis of Montalvão, who received the title of viceroy, by which the succeeding governors-general were officially though not always actually known.

In spite of the temporary loss to the Dutch of a large portion of the coast, a cloud which, as we shall see, was not without its silver lining, the colony of Brazil had made very material progress during the sixty years of union with Spain. Immigration had been considerable, and Bahia, Rio de Janeiro, and São Vicente especially, had prospered, the population at the close of this period in the occupied portion being estimated at some 150,000 to 200,000, three-fourths of whom were Indians, negroes, or half-breeds, mulattoes and *mamelucos*, as the mixture of whites and Indians was called, a curious word of either Arabic or Indian origin. From São Paulo as a center there had already begun the slave-

raids or *bandeiras*, as they were called, which played so important a rôle in the opening up of the interior of Brazil during the next division of the Colonial Period.

*The Period of Expansion and Growth of Nationality,
1640-1750*

In December, 1640, a national revolt broke out in Portugal against the already much weakened and much harassed Spanish Crown, and the "sixty years' servitude" was ended by the proclamation of the Duke of Braganza as King of an Independent Portugal. A treaty of offensive and defensive alliance was entered into between Portugal and the States-General of Holland, and a ten years' truce was declared in the colonies of the two countries, which went into effect in 1642.

The outstanding accomplishment of the hundred years that followed the reëstablishment of an independent Portugal was, so far as Brazil was concerned, the expulsion of the Dutch from Brazil. Maurice of Nassau had greatly extended the Dutch possessions in the north in the period following the signing of the truce, but when, disgusted with the policy of the Dutch West India Company, which was interested only in money returns and not in his progressive administration, he returned to Holland in 1644, the death knell of Dutch occupation was sounded. Already in 1642 the Portuguese settlers in Maranhão had risen in revolt against the Dutch invaders, and by 1644 that region had been cleared of the enemy. Encouraged by this success, the Portuguese colonists in Pernambuco, Europeans, Indians, Negroes, and mixed-breeds of every description, started a revolt on June 13, 1645. A bitter struggle ensued that lasted for nine years, ending finally with the capitulation of the Dutch commander on January

26, 1654, that put an end to the occupation of Brazil by the Dutch West India Company, though the final treaty of peace that formally acknowledged the elimination of the Dutch from Brazil was not signed until August 6, 1661.

But the mere ejection of the foreign invader, important as that was, was less significant than the manner in which that ejection occurred. The successful insurrection was the work not of Portugal, which though secretly encouraging and aiding the undertaking was bound by a treaty to Holland, but of the Brazilians themselves. It had the immediate effect, therefore, of creating and intensifying a Brazilian national sentiment, with a premonition of the ability of the new colony not only to protect its interests against foreign aggressors, but also against oppression and abuses of the mother country herself. This realization of the conflict of interests between Portuguese and Brazilians, the counterpart of the same situation that developed in the Spanish colonies of America between "Creoles" and "Peninsulars," broke out later in open hostilities in the so-called wars of the "emboabas" and of the "mascates" in 1708 and 1711, respectively, of which more will be said later. Indeed one of the most important aspects of the division of the colonial period now under consideration was, as the heading of this section indicates, the growth of a Brazilian national feeling.

While the Dutch were being driven out of the north of Brazil and their extensive domain was being reincorporated into the national territory, events were occurring in the south which ultimately resulted in expanding the area of Brazil into more than double the size to which it was limited by the Treaty of

Tordesillas. This was the work of the energetic and restless *mamelucos* of the plateau in the captaincy of São Vicente. As the basis of these operations was the flourishing town of São Paulo, a name later given to the captaincy created as a result of the activities in question, the pioneers were known as Paulistas.

As early as 1560 gold had been discovered in surface washings in the present state of São Paulo, in consequence of which exploring expeditions were sent out south, west, and north. But the real rush for gold and precious stones did not occur until a century later. It was the slave-raiding expeditions that prompted the earlier activities of the Paulistas. In spite of the protection secured by the Jesuits for the Indians by various royal decrees, the colonists, who needed laborers for the working of their plantations, circumvented the prohibitions of the law in every way, and when the supply of Indian slaves threatened to be wholly cut off by the Jesuit "reductions" or missions, the hardy Paulistas did not hesitate to attack and destroy the missions themselves and carry off their unfortunate wards. In this way the Paulistas came into conflict with the Spanish Jesuit missions of Paraguay, which were in a fair way to extend Spanish control to the sea clear across the region that is today comprised within the south Brazilian states of Santa Catharina and Rio Grande do Sul. This occurred in the years 1628 to 1638, while Portugal was still under the Spanish Crown.

When even the slave-raids failed to prove profitable, owing to the gradual extinction of the Indians, their flight into the vast interior, or their more successful protection by the Jesuits, the tireless and roving Paulistas expended their energies in the search for gold

and precious stones in the country to the north and west of their location. Beginning in 1672 they penetrated into the interior of what is now the vast state of Minas Geraes. In 1693 rich deposits were discovered by them along the Rio das Velhas, and there began a gold rush similar to that experienced in California in 1849.

The Paulistas, there by right of discovery and prior occupation, found their possession disputed by a flood of adventurers, many of whom rushed inland from the coast, especially from Bahia. Among them were a motley assortment of Portuguese, *reinóes* or natives of the kingdom as they were even then called in contradistinction to the native Brazilians. These newcomers sought to reap what the Paulistas had sown, and their attempts to dispossess the fierce "bandeirantes" led to open warfare that lasted two years, 1708-1709. This is known as the war of the *emboabas* in Brazilian history, from the name which the Indians of Espirito Santo had given to the Portuguese. The Paulistas were finally beaten by the *reinóes*, whose chief, Manuel Nunes Vianna, defied even the authority of the governor of Rio de Janeiro who was sent to quell the disturbances. In 1709 the home government created the new captaincy of São Paulo and Minas do Ouro, superseding the captaincies of São Vicente and Santo Amaro. But conditions approaching anarchy continued in the wild mining regions until 1720, when the northern district was separated off from São Paulo as the captaincy of the General Mines, or Minas Geraes as it was called, the predecessor of the later province of the same name, and of the present state.

This conflict between Paulistas and "kingdomites" had several important consequences, aside from the

regular organization of the newly explored regions. In the first place, it greatly accentuated the feeling of a conflict of interests between native Brazilians and the Portuguese aliens, arousing the strongest realization of a Brazilian nationality. In the second place, it led the dispossessed Paulistas to look for other worlds to conquer, which they promptly did by opening up the immense but hitherto unexplored western regions of Matto Grosso and Goyaz, where likewise rich mineral desposits were uncovered. The region of Minas Geraes, though quite unoccupied by the Portuguese for two centuries after the discovery of Brazil, properly fell to the east of the original line of demarcation and so was legitimate Brazilian territory. But the new regions of Matto Grosso and Goyaz, at first a part of the captaincy of São Paulo but later erected into separate captaincies in 1744 and 1748 respectively, lay in what was really Spanish territory, though not occupied or colonized by the Spaniards. In consequence, when in 1750, just at the close of the period we are here considering, Spain and Portugal agreed to a new division of their possessions in America on the basis of actual possession, these enormous tracts were already incorporated into Brazilian territory, thanks to the pioneer spirit of the Paulistas.

In the extreme north, where the State of Maranhão was still directly responsible to the home government and independent of Brazil, the Jesuits had established a series of missions along the Amazon which assured to the Portuguese the possession of the vast Amazon basin, a region which likewise, it will be remembered, lay to the west of the original line of demarcation. The commercial Company of Maranhão was organized in Portugal in 1682 with monopolistic rights over the

commerce of that state. The abuses practiced by that organization, combined with hostility toward the Jesuits who were trying to save the Indians of that region from slavery and extermination, led to a serious revolt in 1684. This is commonly known as the revolution of Bekman, or Bequimão in Portuguese, the unfortunate ring-leader who was executed the following year in the city of São Luiz. His dying declaration that he was happy to die for the people of Maranhão, was notable as being perhaps the earliest formulation of the sentiment of a local nationality in conflict with the abuses practiced or countenanced by the home government.

Likewise in the extreme south measures were taken in this period that gave some promise of putting into successful execution the early ambitions of Portugal to extend her coastwise domain as far as the River Plate. In 1680 the Portuguese government had established a fort on the left bank of the River Plate, known as the Colonia do Sacramento, in present-day Uruguay. As this was in the territory of the Spanish Vice-Royalty of Peru, the fort was immediately attacked and captured by the Spaniards, but returned to the Portuguese in the following year, 1681. Then on the death of Charles II of Spain in 1700 began the War of the Spanish Succession, due to the unwillingness of England, Holland, and Austria to permit Philip, a younger grandson of Louis XIV, then king of the powerful country that he had made of France, to succeed to the Spanish crown as stipulated in the will of Charles II. In consequence the Spaniards again attacked this possession of Portugal which country was united with the Grand Alliance of 1701. After a siege of six months Colonia was delivered to the Spaniards in 1705. But the success of the Grand Alliance against France re-

sulted in the Treaty of Utrecht in 1713, which had such an influence on the position of France not only in Europe but in her colonial empire. To Portugal, and hence to Brazil, this Treaty of Utrecht was important because it returned Colonia to Portugal in the south and recognized the Oyapoc River as the boundary in the north between Brazil and French Guiana.

But this foothold of Portugal in the south was lost through the negligence of John V of Portugal in permitting the Spaniards of the Plate region to establish in 1723 a settlement on the present site of Montevideo, which separated the Portuguese outpost from the rest of Brazil. As a consequence, when the Spaniards again attacked Colonia in 1735, the Portuguese were compelled to retire after a resistance of two years, and the Treaty of Madrid of 1750 between Spain and Portugal assigned Colonia to Spain in exchange for the region of the Seven Peoples of the Missions of the Uruguay. This was not the end of the chequered history of this region in dispute between Spaniards and Portuguese, but the later developments belong in the subsequent periods and will there be mentioned. Suffice it here to say that the disputed region finally remained with neither Argentina nor Brazil, the successors of Spanish and Portuguese power in that region of South America, but to the independent buffer state of Uruguay.

The War of the Spanish Succession reverberated with even more force in another part of Brazil, namely in the city of Rio de Janeiro. Louis XIV, struggling against the Grand Alliance in his plan to establish his grandson on the throne of Spain, struck at Portugal, allied by the Treaty of Methuen of 1703 with England, through authorizing and equipping filibustering expe-

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ditions against her colonial possessions. In 1710, Jean Duclerc left La Rochelle with a fleet of five ships and proceeded to Rio de Janeiro, then a flourishing seaport of some 12,000 inhabitants and point of export for the recently discovered mines in the interior. His attack on the city ended in disaster and in the capture and assassination of Duclerc, but the following year a much stronger French expedition left for Rio under the command of Duguay-Trouin. Though apprised of the contemplated attack, the government of John V did nothing for the adequate protection of the city, and the French invaders captured and sacked the city and agreed to a ransom of 600,000 cruzadoes, 100 cases of sugar, and 200 head of cattle, by an agreement signed on October 10, 1711. The next day, but too late, an army of 6,000 arrived from Minas after a forced march of 17 days for the relief of the city. On November 14, Duguay-Trouin retired from the city, with a booty valued at more than 20,000,000 cruzadoes. Thus ignominiously for Portugal ended the last of the French attacks upon Brazil.

All along the seacoast during this century and more of the colonial period, colonization progressed and the interior of the country was opened up by the rush for gold and precious stones. Under the General Commercial Company of Brazil, organized in 1649, the commerce of the country developed enormously and yielded very considerable revenues to the Crown. Aside from the revenues from the gold and diamonds discovered in this period in Brazil, Portugal profited greatly from the growing export trade in sugar, tobacco, dyewoods, and hides, in addition to the import revenues from wines and salts, and especially from the slave-trade, which continued to increase in proportion

as the supply of Indian slaves diminished. But the commercial monopoly of the Portuguese company proved increasingly unbearable and was abolished in 1720. In general, the colonial administration was oppressive and often corrupt, dominated by the interests and arbitrariness of the Portuguese, who showed little or no regard for the rights or interests of the native Brazilians. No local participation in the government was permitted save in the *municípios*, and dissatisfaction with the evils of the administration was intensified by the resentment against the alien character of the administrators.

A striking example of this fact was evidenced by the so-called war of the *mascates* in Pernambuco in 1710 and 1711. Olinda, the ancient settlement, peopled largely by native Brazilians, was being rivaled by Recife, built up largely by Portuguese merchants who loaned money at usurious rates to the improvident aristocrats of Olinda. John V decided to elevate Recife to the rank of a town, *villa*, though only a few miles away from Olinda, the seat of the government. In the process of laying out the limits of the new town an armed conflict broke out between the two factions, which resulted in the deposition of the governor and of his successor, the bishop. The whole captaincy was plunged into civil war in 1711, which from the term *mascate* or "huckster," with which the inhabitants of Olinda derided the Portuguese merchants of Recife, came to be known as the war of the *mascates*. The outbreak was not quieted until 1714, when Recife was finally accorded its municipal privileges, sharing the seat of government with Olinda, the older capital, and ultimately dispossessing it entirely. As the struggle was essentially one of Brazilians against Portuguese,

it is frequently referred to in Brazil as one of the early manifestations of the spirit that ultimately culminated in Brazilian independence. Pernambuco came more or less to symbolize that spirit.

Of the many other interesting occurrences of the century here under review, only one can be specially mentioned in this brief survey. That was the curious negro state of Palmares, erected in the interior of what is now the state of Alagoas, just south of Pernambuco. Negro slaves had been imported into Brazil from Africa from the time of the earliest settlers, and as the development of the northern captaincies, Pernambuco and Bahia, progressed, they were brought in in ever-increasing quantities. During the Dutch occupation many of these slaves fled into the interior and established a sort of republic there. They grew in numbers and power and descended on the frontier settlements, carrying off slaves, supplies, and arms, and even carried on more or less regular if illegal commerce. This negro republic or federation under the command of a *zambi* or chief, with its capital at Palmares, was a ready resort for escaping slaves, and attained a population of 30,000, the capital in 1680 containing 1,500 dwellings. For twenty years, from 1673 to 1695, this curious negro state defied all attempts at reduction, until finally in the latter year a force of 6,000 soldiers, comprising among others a regiment of the fighting Paulistas, succeeded in overthrowing the federation and killing their chief. The chief significance of this episode lies in the fact that it was the first important protest of the blacks against the system of slavery that was not finally wiped out in Brazil, however, until almost two centuries later; one of the many dramatic interludes of Brazilian history.

Colonial Brazil from 1750 to 1808

The last period of Brazilian colonial history was ushered in by two events of outstanding importance, in 1750. These were the signing of the Treaty of Madrid with Spain on January 13, 1750, and the appointment of Sebastião José de Carvalho e Mello, later Marquis of Pombal, as cabinet minister by the king of Portugal, Joseph, who succeeded to the throne on the death of John V in July of the same year.

The significance of the Treaty of Madrid lay in the fact that by it Spain recognized the claims made by Portugal to the enormous territories lying to the west of the original line of demarcation, extending the Portuguese possessions in the west to the base of the Andes in the northern part, and to the basin of the Paraná in the southern part. This was the direct consequence of the era of exploration and occupation in the century immediately preceding.

It is true that the Treaty of Madrid was annulled by a convention of 1761, but when after several successive wars between Spain and Portugal the Treaty of San Ildefonso was signed between the two countries on December 1, 1777, the general basis of division established by the Treaty of Madrid was re-affirmed and provision made for the exact determination of the boundary lines. When, in the latter half of the nineteenth century, Brazil began the task of adjusting all boundary controversies with her Spanish-American neighbors, the final determination, as described in the first chapter of this work, rested in large part on the provisions of the treaties of Madrid and San Ildefonso. Only in the extreme south, where Portugal had been attempting for a hundred years with varying success

to gain a foothold on the River Plate in present-day Uruguay, were the provisions of those treaties modified. As a result of the hostilities that broke out anew on the continent of Europe in 1772, the Portuguese in Brazil tried again to drive out the Spaniards from the positions they occupied in Uruguay and southern Brazil. Instead of succeeding in that attempt, however, they lost not only Colonia, that had been assigned to them by the Treaty of Paris of 1763, but even the Island of Santa Catharina on the southern coast, well north of the point that had always been conceded as marking the southern extent of the Brazilian coast line. The Treaty of San Ildefonso returned Santa Catharina to Portugal, but left Spain in possession of all the rest of the southern region which she had succeeded in occupying during the hostilities. It was only when war broke out anew in 1801 between Spain and Portugal that the Brazilians were able to drive the Spaniards out, and although Colonia and with it Uruguay were definitely assigned to Spain in the treaties that followed, Brazil re-conquered and retained the important region that is today the southernmost state of Rio Grande do Sul.

So far-reaching in their effects on the fortunes of Brazil were the measures adopted by the Marquis of Pombal as prime minister of Portugal, that the history of Brazil during his administration, 1750-1777, first as minister of foreign affairs and then as prime minister, and the outstanding features of this quarter of a century can best be summarized by a résumé of the measures he introduced, and executed. In the field of commerce he removed some of the most burdensome restrictions and taxes, organized several successful trading companies, and encouraged in every way the

growth of commercial relations between Brazil and the mother country. He encouraged immigration with a view to increasing the labor supply that was so sadly deficient in the colony. In the field of religion he not only curtailed the power of the Inquisition in Portugal, but established complete religious equality among the Catholics in Brazil, and in 1759 he expelled the Jesuits not only from Portugal but from Brazil as well. In spite of the heroic and indisputable services which the Jesuits had rendered in the colonization, pacification, and unification of Brazil, they had become an ever-increasing source of irritation to the colonists, and their activities had lost much of the self-sacrificing character that marked their earlier efforts.

In the field of colonial administration, he not only corrected many abuses that had long been practiced, but he established a complete unity of administration by extinguishing the nine remaining feudal captaincies by purchase or confiscation from the heirs of the original grantees. In 1763 he moved the capital of Brazil from its ancient seat, Bahia, to Rio de Janeiro, and a decade later reincorporated the State of Maranhão into Brazil under a single administration. At the same time he established the practice of employing native Brazilians in important civil and military posts, a practice which would have greatly diminished in time the growing feeling of animosity of the Brazilians toward the Portuguese system of administration. Finally, he greatly improved the military and naval defenses of the colony and pressed the execution of the boundary provisions of the Treaty of Paris. With good reason was Pombal remembered, not only in Portugal but with even greater justification in Brazil, as "the great marquis."

But his advanced program of enlightened despotism was cut short with the death of King Joseph in 1777 and the accession of the reactionary Queen Maria I. Influenced by the hatred of the Jesuits, Maria not only banished Pombal from Lisbon, but undid in large measure the achievements of his administration. It was largely owing to this reaction that there occurred the so-called Conspiracy of Minas, "*Conjuração Mineira*," as it is known in Brazilian history, in 1789.

The captaincy of Minas Geraes, created in 1720 out of the captaincy of São Paulo, was perhaps the worst governed of them all. The governors were cruel, tyrannical, and avaricious. The chief activity of the captaincy for nearly a hundred years, that of gold-mining, though now in manifest decay, was subjected to ruinous taxation cruelly administered, while the production of diamonds that came after the gold rush had been decreed as a royal monopoly. These special grievances, added to the generally oppressive and reactionary character of the Portuguese administration, which retained not only the restriction of commerce to trading with the ports of the home country, but also the strictest prohibitions on printing presses and the circulation of books and other printed material, as well as the almost total prohibition of manufactures, supplied a fertile soil for the planting of the seeds of republicanism and independence which were brought in by the news of the American revolution, filtering into the country in spite of the strictest censorship of news by the home government. Brazilian students in Europe, moreover, had become familiar with French revolutionary philosophy, and became imbued with the ideal of putting the new ideas into effect in Brazil.

The revolution, so-called, turned out to be a tragic

farce. It was premature, for one thing, and it was engineered by a mere handful of visionary idealists, the chief of which, Joaquim José da Silva Xavier, nicknamed *Tiradentes*, or the Toothpuller, paid the price of treason with his life in 1792. The tragic program included the establishment of a republic, the creation of a university, of which there was none in Brazil, the development of industry through the erection of factories, and the abolition of negro slavery. The only tangible result of the ill-fated movement was the decision of the home government to desist from the attempt of collecting the arrears due on the "fifth" of the gold production and to abolish the salt monopoly. But the liberal ideas championed by the revolutionists lived on in the minds of the advanced patriots of Brazil and came to a tardy fruition a hundred years later in the abolition of slavery and the substitution of the empire by a federal republic. That they did not bear fruit sooner in the first quarter of the next century, when the American colonies of Spain declared themselves independent republics, was due to the accident that while the king of Spain was made a prisoner by Napoleon in 1808 and a foreign usurper put on his throne, the king of Portugal made a lucky escape and transferred his Court to Brazil. Of that event and its significance more will be said in the next chapter dealing with the period ushered in by the advent of the Portuguese Court to Brazil.

The last period of Brazilian colonial history, which we have just briefly sketched, cannot better be closed than with a summary of the general conditions of the country. With its boundaries fixed practically at their present extent, Brazil had a population estimated at about two and a half to three million inhabitants. This

was exclusive of the uncivilized Indians whose number then, as even now, was not known, but had enormously diminished in consequence of their relations with the European invaders. Of the estimated population, probably not more than a third, or less than a million, were free white inhabitants. The number of slaves probably exceeded the number of free white men, and the remainder of the population comprised freedmen and civilized Indians. The bulk of this population was concentrated in the captaincies of Minas Geraes, Bahia, Pernambuco, Rio de Janeiro, and São Paulo, the same regions in which the bulk of the population is concentrated today as well.

Agriculture had increased to a remarkable extent, the chief products being sugar, cotton, and tobacco, while coffee was just beginning to be cultivated in the regions that later came to be the coffee plantations that furnished half of the world's supply. In Minas Geraes gold was still being extracted, though to a greatly diminished extent, while diamonds and other precious stones were being mined in appreciable quantities but without benefit to the colony itself. Education as a public function did not exist, the sons of the wealthy alone being instructed and sent to the University of Coimbra in Portugal for higher education.

The reactionary, inefficient, and oftentimes corrupt administration of Brazilian affairs by agents of the Portuguese Crown, while it had retarded and thwarted the normal development of this rich possession, ninety times as great in area, and the equal if not the superior in point of population to the mother country, at the same time had accentuated the feeling of Brazilian nationality as opposed to the avarice of the preying *reinóes*, which had burst forth, as already explained,

in such dramatic incidents as the wars of the *emboabas* and of the *mascates*, and the Conspiracy of Minas.

Such was the situation when political events in Europe, profound as had already been their influence in the prior history of Brazil, once more intervened to alter fundamentally the lines of what appeared to be the probable future developments. This was the Napoleonic invasion of Portugal in 1808 and the flight of the Court from Lisbon to Rio de Janeiro, which marks the beginning of the third major division of Brazilian history, and which will be taken up in the next chapter.

CHAPTER IV

INDEPENDENCE AND THE EMPIRE

THE third great period of Brazilian history comprises the eighty-one years between the arrival of the Portuguese Court in Brazil in 1808, and the establishment of the federal republic in 1889. It falls naturally into three major, though unequal, divisions, viz., the fourteen years until the declaration of independence, in 1822; the reign of Dom Pedro I and the period of the regency, until 1840; and the reign of Dom Pedro II until the overthrow of the empire in 1889.

Dom João VI in Brazil, 1808-1821

On February 10, 1792, Queen Maria I of Portugal, whose reactionary measures have already been considered in the preceding chapter in their bearing on the status of Brazil, having become hopelessly insane, was succeeded by her son Dom João as regent. This ruler came to the throne at the beginning of the most troubled period that Europe had ever known. The first stages of the French Revolution were passed, and within the next eight years Napoleon Bonaparte had begun his meteoric career, culminating in his dictatorship as First Consul in 1800 and as Emperor in 1804.

Portugal, allied with England, at first refused to adhere to Napoleon's Continental Blockade in 1806. But coerced by Napoleon, who had entered into a secret treaty with Spain on October 27, 1807, for the partition

of Portugal and her possessions between the two countries, Portugal broke with England, who promptly blockaded her ports and occupied Madeira. Apprised of the existence of this treaty by the English commander, Sir Sidney Smith, and learning at the same time of the approach of a powerful army under the command of Junot for the capture of Lisbon, Dom João decided to flee with his family and court to Brazil.

This he did on November 29, 1807, not a day too soon, for on the following day Junot entered Lisbon and even captured some belated ships of the royal squadron. Leaving Portugal to the care of a regency, Dom João and his retinue, numbering 15,000 persons, embarked in a fleet of sixteen vessels, convoyed by English ships of war. The populace was violently opposed to this desertion by the royal family, which took with it all the royal treasure that could be transported, but a transfer of the Court to Brazil had long been under consideration. Scattered by storms some of the ships went directly to the capital, Rio de Janeiro, while the flagship of the monarch himself put into Bahia on January 23, 1808. The ancient capital of Brazil welcomed the monarch with the utmost enthusiasm and besought him to establish himself there. But after a month's stay he left on February 26 and reached Rio de Janeiro on March 7.

While still in Bahia, in fact only five days after his arrival, Dom João instituted the first of a series of reforms that were of vast significance to Brazil. This was the decree of January 28, 1808, which at one stroke destroyed the commercial monopoly hitherto enjoyed by Portugal and opened the ports of Brazil to the commerce of all friendly nations. Whether this liberal measure was due wholly to his own initiative or largely

to the influence of the English foreign policy, the beneficial results to Brazil were the same, opening up a new era of commercial activity and prosperity.

Arriving in Rio de Janeiro, Dom João was greeted with the same wild enthusiasm that had met him at Bahia, and during the nine days of festivities that celebrated his arrival he was more than once acclaimed by the populace as "Emperor of Brazil," a title officially conferred upon his son fourteen years later. Arrived and established in Rio, Dom João proceeded with the series of liberal measures that marked the first years of his rule. Industries, which had been forbidden by act of Queen Maria in 1875, were opened freely to all by act of April 1, 1808. Measures were at once adopted for the encouragement of agriculture and transportation. After the creation of the requisite civil and military authorities, Dom João established a royal printing press, the first officially sanctioned in Brazil, founded the Bank of Brazil, erected a powder factory, established a public library, founded two medical faculties, and military and naval colleges. His purpose to found a university was shattered by the opposition of his Portuguese courtiers, who in general opposed all measures tending to exalt Brazil in relation to the mother country, to which they hoped and expected shortly to return.

Practically, Brazil shook off its character of a dependency with the establishment of the Court at Rio and especially with the decrees establishing freedom of commerce and industry. Theoretically, it was still a colony of Portugal until the decree of December 16, 1815, which formally abolished its status as a subordinate part by making it a coördinate member of the "United Kingdom of Portugal, Brazil, and Algarves."

To the new country were invited not only immigrant laborers but men of science and of the arts, resulting in the founding of the Academy of Fine Arts, which was, however, not regularly opened until 1826. But Dom João's reign was above all a period of scientific, artistic, and literary awakening, which marked a new period in that phase of the country's history.

Not all features of Dom João's reign, however, were so beneficial or so popular. His horde of court followers were first housed with scant ceremony in the homes of the capital, whose owners were in many cases simply dispossessed. They had all, moreover, to be provided with titles of nobility and with government posts at enormous expense to the public treasury and no benefit to the state. He declared war on France soon after his arrival in Brazil, viz., on May 1, 1808, and dispatched an expedition that soon conquered French Guiana and put it under a Portuguese governor. But this conquest was lost to France again by the stipulations of the Treaty of Paris of 1814.

In the south, he cast longing eyes on the region east of the Uruguay River, known as the Banda Oriental. This region had, as we have seen, been a bone of contention between Portugal and Spain for considerably more than a century. Following the hostilities with Spain in 1801, the region of present-day Uruguay had been finally assigned to Spain, and with the Spanish ruler deposed in favor of Joseph, Napoleon's brother, the time seemed favorable for a reconquest of the disputed region. Moreover, Dom João's wife, Carlota Joaquina, daughter of Charles IV and sister of Ferdinand VII of Spain, was desirous of founding for herself, as representative of the legitimate rulers of Spain, an empire in the Plate provinces of Spain, since

1776 under the governorship of the vice-royalty of Buenos Aires. The royal couple, though antagonistic in almost all other particulars, were at one, therefore, in the desire for intervention in the south. But the newly chosen viceroy of La Plata, Liniers, and the revolutionary junta of Buenos Aires violently opposed the designs of Carlota Joaquina, and, induced by pressure from England, Dom João concluded an armistice on May 26, 1812, with the revolutionary government of Buenos Aires, renouncing his plans to intervene in the affairs of the Plate Provinces, and withdrawing his troops to the Brazilian frontiers.

But the plan of Dom João to annex the Banda Oriental of Uruguay had not been permanently abandoned. Montevideo had remained the last stronghold of the Spaniards until it surrendered in 1814 to the forces of Buenos Aires. Artigas, first an officer of Spain, then an officer of Buenos Aires, and now leader of the federalist party in Uruguay against the unitarians of Argentina, drove the Argentines out of Montevideo and plunged the country into civil war, striving also to regain from Brazil the territories of the Seven Peoples of the Missions of the Uruguay which had been incorporated into Brazil after the war of 1801, and since 1807 constituted the captaincy of Rio Grande do Sul.

These disorders and violations of Brazilian territory gave Dom João, who, upon the death of his insane mother Maria I on March 20, 1816, had become King João VI, instead of Prince Regent, the desired excuse for intervening. Largely with the help of native Brazilian troops, comprising chiefly Paulistas and Rio Grandenses, the Portuguese forces defeated the Uruguayans and captured Montevideo on January 20, 1817.

The victory might have been followed up by the pursuit of Artigas into the La Plata provinces of Entre Rios and Corrientes, but two considerations counselled against such a move, important as it was to exterminate the forces of Artigas who gave the Brazilians much trouble until his final defeat in 1820. These adverse factors were first, the threat of Ferdinand VII, now again on the throne of Spain after the overthrow of Napoleon, to send a powerful expedition for the recapture of Montevideo and Colonia, and second, the likelihood that Argentina, though torn by internal dissensions, would combine to make war on the foreign invader.

King João, therefore, contented himself with incorporating the Banda Oriental into Brazil under the name of the Cisplatine Province, which it remained until 1828, when, in consequence of events that will be narrated in the next division of this period, the long-disputed region escaped the domination of both contending forces and became an independent republic.

Upon becoming king in 1816, João VI, successful in his military operations in the north and in the south, instigator of the numerous liberal reforms that meant so much to Brazil and put her on a basis of legal equality with the former governing country of Portugal, seemed to be in a position of complete security, in spite of the fundamentally absolutist character of his conception of the kingship, and in spite of the abuses of his Portuguese court and administrators which have already been pointed out. But events of primary importance both at home and abroad were even then shaping themselves toward shaking the secure foundations on which his power seemed to rest.

On the eve, almost, of the ceremonies contemplated

for his formal coronation, there broke out in the north the republican revolution in Pernambuco on March 6, 1817. The revolt was at first merely a desperate protest against the intolerable administration of the president in charge of the captaincy, Caetano Pinto de Miranda Montenegro, but it was also directed against the onerous and inefficient system of dealing with the captaincies in general, and was led by men who were imbued with the republican spirit, then in frank rebellion in the Spanish possessions in America. The president was driven out, a provisional republican government established, and emissaries sent to the neighboring captaincies to secure their adhesion. The revolt spread to Alagoas, Parahyba, and Rio Grande do Norte, and efforts were under way to secure the cooperation of Ceará and Bahia, when strong forces sent by the royal government put down the rebellion and executed almost all of its leaders. The suppression of this republican revolt left Dom João free to proceed with his coronation ceremonies on February 6, 1818, but the spirit of dissatisfaction, the bitterness against the Portuguese parasites surrounding the royal Court, and the dream of independence and republicanism were by no means effectually stamped out by the drastic punishment of the leaders in that revolt. The "Spirit of 1817" was a slogan to which radical and republican movements in the later history of Brazil frequently rallied.

While the revolution in Pernambuco, dramatically voicing the discontent of the Brazilians with the evils of the administrative system of the Portuguese Court, was suppressed for the time being with comparative ease, other events in Portugal precipitated a climax that was not so easily avoided. After the French had

been driven out of Portugal with the aid of the English, that country was governed by a tyrannical regency under the domination of the British, whose representative was Marshal Beresford. The Portuguese, who had violently opposed the departure of the Court in 1808, had been outraged, moreover, by the opening of the ports of Brazil to all commerce, and by the elevation of Brazil to a parity with Portugal. In the same year as the revolution in Pernambuco, 1817, there broke out a revolt in Lisbon, promptly suppressed by Beresford who caused twelve of the leaders to be executed. But the general dissatisfaction was only increased, and when in January, 1820, a revolution in Spain reëstablished the liberal constitution of 1812, which had been suppressed by the reactionary Ferdinand on reassuming power, a new revolt broke out in Oporto, on August 24, 1820. This soon spread to Lisbon and resulted in the overthrow of the regency and the adoption of the Spanish instrument of 1812 as a provisional constitution.

The Cortes, which had not met for more than a hundred years, proceeded to the task of framing a constitution, summoned the king to return to Portugal and invited Brazil to send representatives to the constitutional convention in Lisbon. The news of the revolution in Portugal caused profound reverberations in Brazil. In Pará and the other northern captaincies of Brazil as far south as Bahia, the revolution was hailed with acclaim, and during January and February these districts adhered to the new order of things, the governor of Bahia being deposed and superseded by a provisional council or *junta*. King João, absolutist at heart, but confronted with the danger of losing Portugal altogether, vacillated with fatal indecision. His

first notion was to send his son Pedro to Portugal, but his Portuguese advisers insisted on his returning. Confronted by a military uprising in Rio on February 26, King João was compelled to adhere to the promises made for him by Prince Pedro, to swear to the constitution barely in process of elaboration, and to appoint a new ministry of liberal tendencies.

By act of March 7, João convoked in Rio a convention to select the representatives of Brazil to the constitutional convention. This body, exceeding its powers, demanded of the king the immediate adoption of the Spanish constitution of 1812 until the new Portuguese constitution should be framed and adopted. This the king did on April 21, 1821, but as the disorders and excesses of the convention continued he dispersed it by force of arms, killing some members, wounding others, and arresting a large number. Encouraged by the depression caused by these violent measures in the populace of Rio, at the eleventh hour João revoked the decrees so recently forced upon him. Persuaded now of the absolute necessity of returning to Portugal, he appointed Dom Pedro as Prince Regent of Brazil, and in the night of April 24 he went aboard the warship *Dom João VI*. On the 26th he left Brazil forever with a fleet of 12 ships, taking with him 4,000 persons of his royal entourage and all the money in the royal treasury, some 50,000 cruzadoes. Thoroughly discredited and disliked because of his vacillating policy in the face of the crisis that confronted him, his departure from Brazil in 1821 was not unlike his precipitate flight from Portugal in 1808.

João VI had done much for Brazil, as we have seen, in the thirteen years of his stay. But while the circumstance of his coming and the subordinate rôle played

by Portugal had prevented the question of Brazilian separation from Portugal from becoming an issue, the events of the latter years of his sojourn, and particularly of the last few months before his departure, had made it clear even to him that such a separation was imminent. Two days before his departure he said to his son Pedro, appointed as Prince Regent of Brazil: "Pedro, if Brazil is to separate herself from Portugal, let her be for you who respect me rather than for any of these adventurers."

His premonitions were destined to be fulfilled much sooner than even he suspected. For if the developments of his reign had been such as to make the ultimate separation of Brazil from Portugal inevitable, the attitude of the Cortes of Lisbon was such as to precipitate the event within little more than a year. On September 29 the Cortes of Lisbon, ignoring the protests of the Brazilian delegates, created in the captaincies, or provinces, as they now came to be called, provisional councils of government, to be independent of the prince regent and directly responsible to the government at Lisbon. On October 1 they ordered the immediate return of the prince regent to travel incognito in France, Spain, and England to acquaint himself with the workings of constitutional government. On January 13, 1822, they discontinued the judicial tribunals created in Rio de Janeiro, making of the supreme court a mere provincial tribunal, subordinate to the supreme court in Portugal. In March they re-established in effect the commercial monopoly of Portugal over Brazil. In short, they obviously intended to reduce Brazil to her former position of a dependency of Portugal.

These successive developments tended to crystallize

the sentiments of that party in Brazil, small at first but steadily growing, which saw no way out of a complete separation of Brazil from Portugal. The young Prince Pedro, but 23 years of age, believed to have been favorable to the liberal developments that caused his father to swear allegiance to the constitution of Portugal, on April 21, came to be the reliance of the Brazilian patriots against the reactionary policy of the Cortes. The first momentous decision with which he was confronted was the attitude to be taken toward the decree ordering his departure from Brazil. To ignore the order was tantamount to treason toward the home government. To accept it was to abandon Brazil in her hour of greatest need. His own inclinations were known to be toward leaving the turmoil and confusion of the outraged country. But the growing unity of the Brazilians demanding his presence in Brazil finally won the day, and on January 9, 1822, after receiving a petition to that effect signed by more than 8,000 Brazilian patriots, pointing out that his departure from Brazil would inevitably mean the separation of that country from Portugal, Dom Pedro answered as follows: "Since it is for the welfare of all and the general happiness of the nation, I am ready: Tell the people that I remain."

Though there were still powerful elements, Brazilian as well as Portuguese, that were not yet ready for the separation from Portugal, the enthusiasm of the separatists was kindled anew by this pronouncement and the inevitable consequences rushed toward a rapid consummation of their desires. On the next day the Portuguese commander of the royal volunteers in Rio made an abortive attempt to kidnap the prince and his family and transport them to Portugal. Two days

later, January 10, Prince Pedro forced the surrender of the commander Jorge de Avilez and caused his departure a month later for Portugal with his entire division.

On January 16, Dom Pedro formed a new ministry and soon summoned a congress of provincial attorneys-general, and on February 21 he ordered that no law of the Cortes of Lisbon should take effect in Brazil without the sanction of the prince regent. He was now irrevocably launched on his revolutionary program, and when a Portuguese squadron arrived in Rio on March 10 to bring the prince regent back to Portugal, Dom Pedro captured the flagship and forced the squadron to retire on March 23.

While the sentiment in the northern provinces of Brazil was still in general opposed to the final separation from Portugal, Dom Pedro was chiefly concerned about the two great provinces of Minas Geraes and São Paulo, where the separatists were most active, stimulated by the powerful organization of the masonic lodges. Consequently he made an excursion in the last week of March to Minas Geraes, where he was received with great and general enthusiasm. On his return he was invested with the title of "Perpetual Defender of Brazil," on May 13, and by act of June 3 he determined to summon a constitutional convention for Brazil to meet in Rio de Janeiro. Now definitely accepted as the champion of Brazil, he undertook an excursion to São Paulo, where the Portuguese party was formidable, on August 14, where he quickly succeeded in winning the enthusiastic loyalty of the Paulistas.

In the midst of these activities, as he was returning to the capital of São Paulo from Santos on September

7, 1822, Dom Pedro received the latest dispatches from the Cortes of Lisbon. They made some partial and temporary concessions, but also made it clear that Brazil was to be forced back into the position of an exploited dependency. Torn though he was by conflicting emotions, Dom Pedro had gone too far to retrace his steps, and seizing the opportunity and the crisis by the horns, he called out: "It is time! . . . Independence or Death! We are separated from Portugal." By this resounding cry, known as the "*Grito de Ypiranga*" or "Cry of Ipiranga," from the name of the plain outside the city of São Paulo on which it was uttered, Dom Pedro gave verbal expression and finality to a situation which in fact had been instituted if not consummated by the arrival of Dom João in Brazil. Because of its authoritative and dramatic nature, the declaration of Dom Pedro, already "Perpetual Defender of Brazil," marked September 7, 1822, as the Independence Day of the new Brazilian nation. The events that followed upon this memorable occurrence will be taken up in the next division, comprising the history of Brazil from the Declaration of Independence to the accession of Dom Pedro II in 1840.

*From the Declaration of Independence to the Accession
of Dom Pedro II, 1822-1840*

Dom Pedro left São Paulo on September 10 and covered in record time the three hundred miles to the capital, arriving in Rio on the evening of September 15. Upon the motion of the senate of the city, Dom Pedro was proclaimed Constitutional Emperor of Brazil on October 12, 1822, and in his proclamation of acceptance he bound himself to adopt and put into

effect the constitution to be framed by the constituent and legislative assembly already promised in his proclamation of June 3, before even independence had been declared.

The accomplished fact of independence was accepted with surprising generality throughout Brazil. In some of the northern provinces, however, where strong Portuguese garrisons existed and where separatist tendencies had never developed as fully as in Minas Geraes and São Paulo, there was some armed resistance to the new order, and in the extreme south in the Cisplatine Province a loyalist governor held out with a force of 4,000 men. But with the British commander Lord Cochrane hired to command the fleet, these foci of opposition were quickly reduced. During the summer of 1823 all of the northern provinces were brought under Brazilian control, and on November 18 the Portuguese commander of Montevideo capitulated.

On May 3, 1823, the constituent assembly met in Rio de Janeiro amid the greatest enthusiasm and good wishes of the people. Everything seemed to augur a most auspicious introduction to the reign of the young emperor, in spite of the bankrupt condition of the finances of the country, due to the extravagant and corrupt financial administration of the ministers of João VI, the looting of the Bank of Brazil, and the removal of all the remaining funds when the king returned to Portugal. The youthful emperor was idolized as the liberator of Brazil and as the champion of liberal ideas.

But these promising beginnings were before long largely undermined. In the constituent assembly the leading spirits were José Bonifacio de Andrada and his two brothers. These patriotic and able Paulistas had

played a preëminent rôle in persuading the Prince Pedro to defy the Cortes and remain in Brazil, and José Bonifacio particularly, appointed chief minister on January 16, 1822, before independence had been definitely decided upon, was largely responsible for the attitude and actions of the young prince when the critical moment came. He, therefore, felt that he was the real creator of the independent empire and of its emperor and entitled to have his ideas on the constitution prevail. A crisis was precipitated by the introduction of a measure, sponsored by the Andradas, to expel all Portuguese suspected of disloyalty to the new régime. This aroused the most violent antagonism and led to the dismissal of the Andrada ministry on July 17. They thereupon became the most outspoken and influential members of the opposition in the constituent assembly, using the newly decreed liberty of the press for attacking the ministry and the emperor. Finally, driven to desperation, Dom Pedro, by nature headstrong and dictatorial himself, dissolved the assembly by force of arms and arrested and deported the leaders of the opposition, chief among them the Andradas, who were banished to France.

The tragic end of the constitutional convention was perhaps the first cause of a break in the wave of popularity on which the young emperor had been borne, for the banished leaders, especially the Andradas, were beloved and respected by the leading patriots. It is true that in the proclamation of November 12, dissolving the fractious constituent assembly, Dom Pedro promised that another would immediately be summoned to pass upon a constitution which he himself would submit to them and which would be twice as liberal as the one partially drafted by the dissolved

assembly. It is also true that he redeemed this promise by appointing on November 2 a special commission or council of state of ten members, presided over by himself, to which was submitted the draft constitution on December 17, and that on March 11, 1824, he fixed as the date for taking the oath of allegiance to the new constitution March 25, the date on which it actually went into effect.

But the opposition aroused by the dissolution of the assembly and the dismissal of the Andradas was not silenced by the proclamation of a constitution which was granted by the monarch instead of enacted by representatives of the people. In Pernambuco, the memory of the revolution of 1817 and particularly of the ruthless way in which it was quelled was still vivid, and upon hearing of the action of the emperor another revolt broke out there, in December, 1823. Like its predecessor this movement was planned to extend to the other northern provinces, and on July 2, 1824, there was launched the "Confederation of the Equator," comprising, besides Pernambuco, the neighboring states of Parahyba, Rio Grande do Norte, and Ceará, where opposition to accepting the constitution proclaimed by Dom Pedro assumed revolutionary proportions. While the separatist character of the movement threatened to dismember the new empire, the dramatic embodiment of the two ideas of republicanism and federalism, destined to march hand in hand in the later years of the empire to final fruition in 1889, constituted an important landmark in the political thinking of Brazil, though the revolt itself was quickly and effectually put down, again with the efficient assistance of Lord Cochrane.

With the suppression of this revolt, terminating

like the other in the execution of a dozen or more of the ringleaders, in 1824 and 1825, the situation again seemed most favorable to Dom Pedro. The constitution of 1824, with the large measure of control accorded to the emperor, particularly through the so-called "moderative power," was now in effect in all the land, enforced by presidents appointed by him in each province and applied by judicial officers also centrally appointed. The status of Brazil as a sovereign and independent member of the family of nations was established through her recognition by the United States of America in 1824 and by Great Britain in 1825, and even Portugal, which, though torn by internal dissensions, was still dreaming of restoring Brazil to her former allegiance, extended recognition of Brazilian independence on August 29, 1825, at the instigation of the British Foreign Minister, Canning.

But in spite of these external appearances of assurance, other difficulties were already impending for the young ruler, difficulties more serious than any that had gone before. In the Cisplatine Province opposition to the domination of Brazil had never completely disappeared since its incorporation into that country in 1821, and Argentina, still intent on a re-incorporation of Uruguay with the United Provinces of the Plate, fomented and aided the feeling of rebellion. On April 19, 1825, the Uruguayan patriot Lavalleja, at the head of the immortal "Thirty-three," crossed from Buenos Aires into Uruguay and declared the independence of the Cisplatine Province. Argentina, of which country Rivadavia was then president, was appealed to for aid and in November entered into war with Brazil. The Brazilian forces on

land and sea were defeated by the combined Uruguayans and Argentines in 1827, and in the following year, through the mediation of Great Britain, which was unwilling that the Banda Oriental should belong to either of the contending parties, peace was concluded and Uruguay set up as an independent state. Twenty-four years later Brazil intervened to protect Uruguay from absorption by the Argentine tyrant Rosas, but at this period the disastrous campaigns and the loss of the Cisplatine Province did much to lower the prestige of Dom Pedro.

Meanwhile the first national legislature created by the constitution of the empire assembled in 1826. Almost from the first, the opposition to the ministries of the emperor were in the majority, and legislators and press alike continuously antagonized the monarch. Inexperienced in constitutional government, he showed himself more and more dictatorial and headstrong. Combined with his autocratic tendencies, his growing laxity in morals and his shameless conduct with the beautiful mistress whom he made Marchioness of Santos, brought him into public disfavor.

The death of João VI on March 10, 1826, necessitated Pedro's abdication of the Crown of Portugal in favor of his infant daughter Maria da Gloria, who was to marry his brother Dom Miguel. But Miguel, proceeding to Lisbon, dissolved the Cortes and, tearing up the orders of Dom Pedro, usurped the throne of Portugal. Thereafter Dom Pedro was continually involved in the affairs of Portugal, to the exclusion, it seemed, of the interests of Brazil, and he was even suspected of planning to re-subject Brazil to Portugal.

Added to all these sources of popular irritation was Pedro's manifest predilection for his Portuguese ad-

visers in opposition to the Brazilian popular representatives, and his prodigal creation and conferment of orders of nobility. Throughout the country opposition toward the emperor rapidly gathered to a head, open secession and the breaking up of Brazil into a loose federation of states were advocated by the press, and even republicanism raised its threatening head. The provinces were in a condition of absolute subordination to the central government under the constitution of 1824, and the political and economic stagnation that was their lot played a powerful part in the violent antagonism that broke out against the government.

Worn out by the continual and increasing opposition, disheartened by the cold reception he received on a political tour in Minas, and by the conflict that broke out between Portuguese and Brazilians on his return to Rio in the first part of March, 1831, concerned about the fate of his deposed daughter in Portugal, and abandoned by his troops when a popular demonstration demanded the reinstatement of the ministry he had dismissed on April 5, Dom Pedro gave up the struggle and abdicated on April 7, 1831, in favor of his son Dom Pedro de Alcantara, then barely five years of age. On April 13 he embarked for Portugal, a dethroned and disillusioned idol, leaving a disorganized and disturbed country to a five-year-old successor.

Back in Portugal Dom Pedro succeeded in securing his daughter on the throne against the usurpation of Dom Miguel, but he did not long survive his success, for in September, 1834, a little over three years after his return, he died.

Brazil, with the abdication of Dom Pedro I, was plunged into a condition approaching anarchy. The army was in a state of almost complete lawlessness,

and revolutionary movements broke out in most of the provinces, especially in the extreme north and the extreme south. José Bonifacio de Andrada had returned to Brazil in 1829, and before his abdication Dom Pedro had appointed his former adviser and subsequent opponent as tutor of the infant heir. In accordance with the terms of the constitution of the empire, a provisional regency of three members took over the government on April 7, to be succeeded on June 17 by a permanent regency of three members appointed for four years by the national assembly.

The events leading to the abdication of Dom Pedro I had constituted a triumph of the liberal elements in the empire. But immediately after the abdication, a three-cornered contest for control began in the political field. The Moderate Liberals, comprising the liberal supporters of a constitutional monarchy, were the element responsible for the abdication of Dom Pedro and assumed power immediately thereafter. The Reactionaries or advocates of the recall and restoration of Dom Pedro, known as the *Caramurús*, comprised a considerable element of conservative statesmen, including the Andradas. Their hopes were blasted, however, by the death of Dom Pedro in 1834, and their forces joined then with a portion of the Moderate Liberals to form the Conservative Party that came into power in 1836. While the *Caramurús* were striving for the restoration of Dom Pedro, the third group, known as the *Exaltados* or Extreme Liberals or Radicals, were demanding autonomy for the provinces, and many of them were out and out republicans.

For three years the triumvirate struggled heroically against the forces of anarchy and disintegration, but

without great success, though the energetic activities of the minister of justice, Father Diogo Antonio Feijó, who created a national guard to take the place of the insubordinate army, suppressed several of the most threatening revolts. In 1834 a distinct liberal step was taken in the amendment of the constitution, according to the ill-used and complaining provinces a considerable measure of local autonomy with their own popularly elected legislatures. This amendment to the constitution was known as the *Acto Adicional*, and besides improving the position of the provinces it substituted a regency of one for the three-headed regency that had proved so ineffectual in pacifying the country.

In the following year the assembly elected to the post of regent for a period of four years Father Feijó, who had already proven his energy and capacity. But in spite of the centralization of executive power in the hands of one man, in spite of the greater freedom accorded to the provinces, and in spite of the signal abilities of the regent, the disorders throughout the country continued. Some of these he succeeded in suppressing, but in the very same year in which he assumed power a civil war broke out in Rio Grande do Sul, the so-called War of the "Far-apos," which threatened secession from the empire and lasted for ten years. Serious opposition developed against the regent in the assembly, where the former Reactionaries, deprived of their hope of restoration by the death of Dom Pedro, united with disaffected members of the Liberal party to form the Conservative opposition. Confronted with an adverse majority as a result of the elections of 1836, Father Feijó resigned his post as regent and turned over

the government in 1837 to Araujo Lima, later made Marquis of Olinda, a conservative leader who was regularly elected to the post on April 22, 1838.

But the Conservatives had no more success in restoring quiet to the country than had their predecessors. The revolution in Rio Grande do Sul, now frankly republican and secessionist, continued unchecked, and other serious revolts broke out in Bahia and Maranhão. The Liberals now pinned their faith to the establishment of the young emperor on the throne, who would not, however, reach the constitutional age of majority, 18 years, until 1843. They, therefore, launched a program of declaring his majority at once, a program which quickly attracted a powerful support from the ranks of the Conservatives also. On July 23, 1840, therefore, the young emperor, having declared his acquiescence, though only fifteen years of age, was by act of the national assembly declared of age and proclaimed as constitutional emperor of Brazil.

The ten years of the regency, though disturbed by almost continual civil strife, had not been wholly barren. Even under the unfavorable circumstances, the economic conditions of the country improved, and educational and scientific institutions, such as the college later known as the Collegio Pedro II, and the Instituto Historico e Geographico Brasileiro were founded. But, above all, the period of storm and stress was one of radical apprenticeship in the difficult task of government. It produced statesmen of patriotic fervor and highmindedness whose experience was of the greatest benefit during the succeeding reign of Dom Pedro II. And, finally, the ideals of federalism and republicanism that blossomed during this dis-

turbed period, though at the time threatening the empire with disintegration because of their extreme manifestations, never again completely died out, coming to full fruition half a century later.

The Reign of Dom Pedro II, 1840-1889

The reign of Dom Pedro II, lasting nearly half a century, was one of the most important, if not the most important period of like extent in the history of Brazil. Though marked during its first decade by a continuation of revolutionary disturbances throughout the land, then agitated by the wars with Argentina and Paraguay, and terminated by the overthrow of the monarchy by force, it was none the less a period of evolution characterized by significant developments in almost every branch of national life.

The government of Dom Pedro, inaugurated under a Liberal ministry headed by the two brothers of José Bonifacio de Andrada, who had died in 1838, saw itself confronted first of all with the two serious revolts in Maranhão, known as the "Balaiada," and the War of the "Farrapos" in Rio Grande do Sul, both inherited from the regency. The former was finally terminated in 1841, but before the government could direct energetic measures against the southern province, serious revolts broke out in 1842 in São Paulo and Minas Geraes. These were due to the measures passed by the Conservatives who succeeded to power in 1841 and passed laws re-creating the council of state and revising the code of criminal procedure, dissolving the chamber of deputies on May 1, 1842, prior even to its assembly. The whole reign of Dom Pedro II was marked politically by the alternation in power of the two great parties, the Conservatives and Lib-

erals, as a result of the development of the principle of ministerial responsibility.

The revolts in the two major states were quickly put down by Luiz Alves de Lima e Silva, who had pacified Maranhão and been created Baron of Caxias in consequence. This able leader, who combined military prowess with diplomatic address, was then intrusted with the difficult task of quelling the civil war that had been going on for nearly ten years in Rio Grande do Sul in defiance of all efforts of the central government at pacification. In this enterprise he was likewise successful and on March 1, 1845, the "Farraapos" finally laid down their arms. Quiet was thereby restored throughout the empire, only to be broken by a revolutionary outbreak in Pernambuco, that fruitful center of disturbances. The Liberals had succeeded to power in 1844 and when in 1848 they were again displaced by the Conservatives, the Liberal Party chiefs in Pernambuco attempted to displace the Conservative officials by force. This revolt, commonly spoken of as the "Praieira," because its press organ was published on Praia Street in Recife, was quelled in 1849, and marked the last revolutionary attempt of the second reign. Thereafter, Conservatives and Liberals, though alternating in the parliamentary struggles for control of the government, presented a united front for internal order and external defense.

The first decade of Dom Pedro's reign may, therefore, be characterized as a period of internal pacification and consolidation.

The next two decades, 1850-1870, saw internal affairs, though registering great advances along economic lines, overshadowed by foreign relations. The population of Brazil, which was estimated at around

8,000,000 in 1850, of whom about 2,500,000 were slaves, had increased by 1872 to over 10,000,000, of whom only about 1,500,000 were slaves. Steamship service with Europe was inaugurated in 1850 and the first railroad was built in Brazil and put into operation in 1854. By 1872 nearly a thousand kilometers were in operation. Agriculture and industry showed like substantial developments, though in all these directions the greatest strides were made after the close of the Paraguayan war.

Among the external complications that marked the two decades under consideration, the first was the war against the Argentine tyrant Rosas. This ambitious Argentine dictator planned to bring Paraguay and Uruguay both into the Argentine federation, and Brazil, recognizing the independence of Paraguay, entered into an alliance with Uruguay and with the revolting Argentine chieftain Urquiza, in 1851, and the next year the united armies, powerfully aided by Brazilian troops, overwhelmed Rosas at the battle of Monte Caseros, thus putting an end for all time to the Argentine menace to Uruguay.

Also intimately connected with affairs in Uruguay, that center of disturbances between Spaniards and Portuguese, was the Brazilian participation in the Paraguayan War. Uruguay was the scene of almost unending conflicts between Colorados and Blancos, the two great factions into which the country had been divided at the beginning of its independent existence. In the course of these conflicts, as was inevitable, Brazilian subjects in Uruguay suffered damage. Brazil protested to the government, which was either unable or unwilling to give the necessary satisfaction, and so Brazil lent its support to Flores, leader of the

Colorados, against the Blanco President Aguirre, who was quickly overthrown on February 20, 1865.

The Uruguayan president had appealed for aid to the dictator of Paraguay, Francisco Solano López. López, tyrant and head of an army of 80,000 well-disciplined warlike soldiers, by far the strongest in South America, welcomed the appeal from Uruguay as an excuse for executing his insane dreams of ambition. After protesting to the Brazilian government against the intervention in Uruguay, López seized a Brazilian ship on the Paraguay River and precipitated war with that country. Then, because President Mitre of the Argentine federation would not permit the troops of López to cross the Argentine territory of Corrientes in their march against Uruguay and the south of Brazil, he declared war on Argentina also. The insane and fatal war waged by López for five years against Argentina, Brazil, and Uruguay, ruined his own country beyond the possibility of recuperation for two or three generations, as practically all of the adult male population, besides thousands of women and children, perished in the heroic but suicidal struggle.

For Brazil, whose troops and resources bore the major portion of the burdens of the war, especially during the latter period of the struggle, the Paraguayan War was a costly undertaking. Fifty thousand soldiers were lost in fighting and disease, and the money cost ran into hundreds of millions of dollars. No territorial aggrandizement compensated Brazil for her sacrifices, neither has the money indemnity ever been paid by Paraguay. Yet the Paraguayan War was not without its profound though intangible effects on the history of Brazil. While on

the one hand it put the army on a pedestal because of its heroic accomplishments, on the other it gave a stimulus to the two great forces that were destined to overwhelm the monarchy itself, viz., abolition of slavery, and republicanism. Hardly had the Paraguayan War been terminated by the death of López on March 1, 1870, when these liberal movements, paradoxically held in check by the very war situation which helped to bring them to the front, took on a really significant development, of which more will be said in a moment.

Among less spectacular developments of these two decades, characterized, as has been said, by the overshadowing aspects of foreign relations, must be mentioned the so-called "Christie Affair" in 1862, which resulted in a temporary severance of diplomatic relations between Brazil and Great Britain, and the friction between Brazil and the United States of America, resulting from the attitude of the empire toward the Confederate States in the Civil War, and toward Maximilian in Mexico. But, generally speaking, the era was one of diplomatic successes by Brazil and increase of prestige in foreign countries. It was in this period also that definite steps were undertaken to settle and rectify the boundaries between Brazil and her neighbors, many of which were still in a state of great uncertainty.

Following the two decades of absorption in foreign affairs came the last two decades of the empire, characterized by the spread of abolition and republican ideas. The abolition of slavery was necessarily forced into the foreground by the outcome of the Civil War in the United States. The slave trade had finally been effectually stopped as a result of British pressure

by 1850. But abolitionist ideas made little progress in Brazil, where slavery had been a fundamental economic institution for three hundred years. Nevertheless, after the emancipation of slaves in the United States, there were no great nations in which slavery was permitted to continue, and the Emperor Dom Pedro II was anxious to remove that stain upon Brazilian national honor. His hands were tied, however, by the fact the greatest economic and political forces in Brazil were aligned with the plantation owners, who saw only economic ruin in the abolition program.

The first real step in the abolition program was taken with the law sponsored by the Viscount of Rio Branco and enacted after a bitter struggle of five months on September 28, 1871. This law, commonly known as the law of the "ventre libre" or "free birth," provided that the children born of slave mothers should thenceforth be free. During the preceding period, a decade of party conciliation had been followed by renewed strife between Liberals and Conservatives, the former being in the ascendancy from 1862 to 1868, when they were followed by the Conservatives, against whose opposition Rio Branco forced through this first step in emancipation. The Liberals were returned to power in 1878 and agitation in favor of immediate emancipation continued with increasing momentum. An emancipation society had been formed, books and propagandist literature were increasing steadily, and sentiment, except on the part of the great slave-owners, was moving irresistibly toward abolition. In 1884 two of the northern provinces, Ceará and Amazonas, freed their slaves, and others soon followed. Nevertheless, when a bill for immediate emancipation was introduced into the na-

tional congress by the Liberal cabinet under Dantas in 1885, it caused the overthrow of the Liberals and the reinstatement of the Conservatives.

But even the Conservatives in control of the government could not do more than postpone the final day of complete abolition by enacting partial measures. In September, 1885, there was enacted the law freeing all slaves over 60 years of age. But this measure hastened rather than retarded the final step, and the Princess Isabella, acting as regent for her father, Dom Pedro, who was in Europe seeking amelioration in his failing health, was heartily in favor of complete emancipation. A new bill for immediate and total abolition was introduced into the legislature on May 8, 1888, and enacted into law five days later, and sanctioned by the Princess Isabel. This act is known in Brazilian annals as the *lei aurea*, or Golden Law, and the anniversary of its enactment, May 13, is an important ceremonial day still, while its passage at the time aroused unprecedented and indescribable enthusiasm. And yet, by alienating the great conservative plantation owners, the natural bulwark of the monarchy, this measure unquestionably hastened its downfall, which occurred eighteen months after this significant act.

Contemporaneously with the abolition movement, there developed and spread the republican agitation. Like the abolition movement, the republican movement, sponsored in large part by the same elements that championed emancipation of the slaves, was held in abeyance during the Paraguayan War, to break out all the more clearly immediately upon the conclusion of that struggle. In 1870 there appeared the first significant republican manifesto in São Paulo, followed in the next year by the first republican congress. In

all portions of the empire republican clubs began to be organized and republican newspapers to appear. It was at first a movement of the intellectuals, largely, and would probably not have achieved success for another generation at least, if the elements that would normally have supported the monarchy had not abandoned it from various motives.

One of these failing supports has already been mentioned, the slave-holding Conservatives. Another was the clergy which had been antagonized by the imprisonment of the bishops of Olinda and Pará because of their activity against the brotherhoods that admitted Free Masons to their membership. Still another, and most important of all, of these insecure foundations for the monarchy was the military element. The peaceful attitude of Dom Pedro II, scholar rather than soldier or statesman, displeased the officers, who just after the Paraguayan War had been in the heyday of their glory. Lacking fields of battle on which to distinguish themselves, they sought victories in the field of politics.

The general discontent and disaffection in the army made a fertile field for the dissemination of republican propaganda. A serious controversy over the censuring of disaffected officers by the minister of war stirred the antagonism of the officers on the one hand and the concern of the government on the other. Certain suspected regiments were ordered to remote parts of the empire. This sufficed to win to the support of the republican propagandists the chief of the discontented militarists, Deodoro da Fonseca. The last Liberal ministry that had come into power under Ouro Preto on June 7, 1889, failed to realize the gravity of the situation until too late, and the meeting

of-republican and military chiefs on November 9, 1889, sealed the doom of the monarchy. Early in the morning of the 15th, the Second Brigade revolted in Rio de Janeiro, the rest of the army followed suit, and on the same day a provisional government under Marshal Deodoro da Fonseca proclaimed the end of the empire and the establishment of a federal republic in its place. Dom Pedro, old and broken in health after a reign of 49 years, was ordered to leave the country with his family, and the last great period of Brazilian history was ushered in. But before leaving this period of the reign of Dom Pedro II it will be worth while to glance briefly at what had been accomplished up to the close of the empire as a result of the long, peaceful, and in many respects enlightened, rule of the second emperor of Brazil.

At the close of the imperial period the population of Brazil had increased to something over 14,000,000, though this figure, like all of those relating to vital statistics in Brazil up to the last census of 1920, was based on rather rough estimates. Up until after the first troubled decade of Dom Pedro II's reign, that is, until the beginning of the latter half of the nineteenth century, immigration had played a relatively small part in the increases in population recorded. But in 1853 the number of immigrants entering Brazil, which since the year of independence had rarely totaled and had not nearly averaged 1,000 a year, jumped to 10,000, and only fell below that again in one or two years. On the other hand, in the single year of 1888, just before the overthrow of the empire, more than 133,000 immigrants came to Brazil, of whom 104,000 were Italians. In the years that had elapsed since the last population estimates, 1872, the total number of immi-

grants into Brazil amounted to more than half a million, a very significant addition to the European population of the country.

The importance of this immigration in the ethnic or racial make-up of the Brazilian nation appears from the fact that whereas in 1872, of the total population only 40 per cent were classed as white, 40 per cent as mulatto, and 20 per cent as negro, at the close of the empire the proportion of whites had increased to almost 50 per cent, the number of negroes had remained almost stationary and sunk in percentage to 15 per cent, the persons of mixed blood representing the other 35 per cent. The immigration which Dom Pedro II did so much to encourage had, therefore, not merely an economic significance, but even more strikingly a sociological significance.

The railroads in operation at the end of 1889 had almost reached 10,000 kilometers (more than 6,000 miles), and had more than tripled in the last ten years of Dom Pedro's reign. In spite of the economic setback due to the emancipation without compensation of nearly three-quarters of a million slaves by the act of 1888, valued at something over \$200,000,000, the exports from Brazil in 1889 reached a total value of more than \$50,000,000.

On the political side, also, the long rule of Dom Pedro II was an era of steady, though at times imperceptible, advance. The constitution of 1824, though a liberal instrument when viewed in the light of European monarchies of that period, left large prerogatives in the hands of the emperor, so large in fact that a ruler of energy and capacity could practically control the affairs of state and manipulate the legislature and even the ostensible parliamentary system. Dom

Pedro II, broad-minded, widely read, and free of imperialistic or militaristic ambitions, though more a student than a statesman, used the powers accorded him under the constitution to their fullest extent, and it was well that he did so. Under his benevolent despotism, if despotism it could be called, Brazil enjoyed an era of internal peace and development and external prestige. Democratization of the government would probably have spelled anarchy in Brazil as it did in all the Spanish American states after independence. The half century of Dom Pedro's reign afforded two generations of practice in politics and allowed a gradual and orderly transition from the monarchy to the republic. On its political side, therefore, the reign of Dom Pedro II must be judged as a period of experience and training rather than as a period of accomplishment. How badly needed that training was and how inadequate even that long period of apprenticeship in self-government proved to be will appear but too clearly from the study of the period of the federal republic, inaugurated on that eventful November 15, 1889, a study that will be the subject of the succeeding chapter.

CHAPTER V

THE FEDERAL REPUBLIC

The Provisional Government

IT was one of the most remarkable features of Brazilian history that the attainment of independence from Portugal, discussed in an earlier chapter, occurred almost without bloodshed, the process of separation from the mother country being, in the words of a now classic simile, "like a ripe fruit falling from the tree." Equally remarkable, however, was the fact that the no less momentous change from a unitary empire to a federal republic in 1889 occurred in a peaceful and almost orderly manner. The military *coup d'état* of November 15 was immediately followed by the proclamation of a provisional government under Marshal Deodoro da Fonseca, and the first of a series of decrees was issued by which that government ruled for the fourteen months that elapsed between the overthrow of the empire and the election of the first constitutional president on February 25, 1891.

In all of the twenty provinces of Brazil, which by the first decree of the provisional government were converted into autonomous states of a federal union, the news of the proclamation of the republic and of the banishment of the emperor and his family found the republican leaders and military malcontents ready to take action. The provincial presidents, appointees of the imperial régime, in virtually all cases bowed

to the inevitable and surrendered their offices without struggle. Provisional committees, usually headed by army officers, assumed the reins of government and in a few instances military governors appointed by Deodoro assumed temporary control. The municipal district of Rio de Janeiro, the "neutral municipality" as it was called, because it was withdrawn from the jurisdiction of the province of Rio de Janeiro in which it originally lay, was provisionally declared the seat of the federal power and temporarily placed under the immediate administration of the provisional government.

The first decree promised the election and summoning of a national constituent assembly for the framing of the federal constitution and a similar procedure for the states, which were assured a large measure of "legitimate sovereignty." On November 19 adult male suffrage for all citizens, in the possession of their civil and political rights, who could read and write, was decreed, to take the place of the income qualification existing under the imperial government. On December 3 the provisional government took the first steps to redeem its pledge for calling a constitutional convention by appointing a commission of five to prepare a draft constitution for submission to such convention when summoned, and on December 21 the provisional government fixed the following September 15 for the date of the elections to be held for such an assembly. But the promised action with regard to the state constitutions did not occur until nearly a year later.

The commission of five working on the new federal constitution reported in May, 1890, but as the instrument was unacceptable to Marshal Deodoro, he caused it to be revised by a committee of cabinet ministers

with the eminent Ruy Barbosa at its head. The draft constitution as thus revised was promulgated on June 22, 1890, subject to approval or alteration by the constituent convention when it should meet on November 15 of that year, the anniversary of the declaration of the republic. This project, somewhat modified by a later decree of the provisional government on October 23, 1890, was in most fundamental respects the constitution as later approved by the constituent assembly, though some important modifications were made by that body. But it is important to note that under it many legislative and executive decrees were adopted of far-reaching significance, creating actual situations and establishing machinery and practices of government which could with difficulty have been altered by the constituent convention had it been so minded.

It was, of course, inevitable that the provisional government should take such steps as were immediately necessary to supersede the monarchical institutions, such as the abolition of the life senate and council of state and the removal of the provincial presidents. But it does not appear to have been necessary to postpone the calling of a constitutional convention for so long a time, especially as there was virtually no opposition to the new régime. As a matter of fact, however, Marshal Deodoro was of a dictatorial character that aroused serious opposition before he had long been in power. As leader of the military forces whose defection overthrew the monarchy he naturally considered himself as the father of the new republic and he intended to steer it in the way he wanted it to go. As one of the chief elements of opposition to the government of Dom Pedro II had been the disgruntled military, who thought they were not being accorded

due recognition in the state, this military dictator naturally favored his special class. Army officers were promoted promiscuously and put into civil positions of authority. In the various states, whose assemblies had been dissolved by his decree five days after the revolution, army officers were appointed by him as provisional governors or presidents, and the convocation of assemblies to adopt constitutions was fixed for as late a date as April, 1891.

While Marshal Deodoro was thus carrying on a military government, the national constituent assembly met on November 15, 1890. This assembly consisted of three senators chosen from each state and the federal district of Rio de Janeiro, as provided in the government project of the constitution, and of 205 deputies, roughly proportioned among the states according to population, but every state having at least two. Senators and deputies sat in the constituent assembly as equal members of a single body with a total membership of 268. The provisional government exercised through its representatives a thorough control over the elections, and the majority of its members belonged to the Historical Republican Party, that is, the group of radicals who had been active ever since 1870 in furthering the propaganda for a federal republic.

Within a week after its convocation the assembly selected a committee of 21, one representative from each of the component parts, to consider the government project of a constitution decreed the preceding June. This committee reported on December 10, and thereafter for more than two months the assembly considered the report and the project, section by section. In a few major points the committee of 21

recommended departures from the government project, some of which were adopted by the assembly and some of which were rejected. In the case of a few other major features the assembly refused to accept the committee report approving the project and introduced changes of its own, notably in the adoption of the direct popular election of the president. But, generally speaking, the main lines laid down in the two projects of the provisional government, and already put into effect in several directions, were approved by the convention when it finally completed its labors on February 24, 1891.

Meanwhile Marshal Deodoro was bringing more and more under the direct control of governors appointed by him the various states to which the Decree No. 1 of the provisional government on November 15, 1889, had promised the right to elect their own officials and to conduct their own affairs. Beginning in October, 1890, these centrally appointed governors proclaimed temporary state constitutions that were to be ratified by state legislatures whose date of convocation was fixed at the time of proclamation. But although many of these provisional constitutions were proclaimed during the time that the constituent assembly was meeting in Rio de Janeiro, none of them was ratified until several months after the new federal constitution was in force, the arbitrary interference by Marshal Deodoro in the government of these states causing a continually rising flood of discontent.

On February 25, 1891, the day after the proclamation of the federal constitution by the constituent assembly, that body, in accordance with the transitory provisions of the instrument itself, proceeded to elect a president and vice-president to serve until Novem-

ber 15, 1894. Some conception of the antagonism stirred up in the assembly by the chief of the provisional government, Marshal Deodoro, may be gained from the fact that while he was in all respects the natural person to be chosen as first executive and might, if his power had been used as wisely as it was used extensively, have hoped to be elected, like George Washington in the United States, by unanimous choice, he received only 129 votes. The next highest candidate, Prudente de Moraes, senator from São Paulo and president of the constituent assembly, received 97 votes as the choice of the anti-military group. As vice-president the assembly elected another military leader, Marshal Floriano Peixoto, and then adjourned, its constituent functions being terminated, to meet as the first national congress in separate chambers on June 15.

Thus terminated the brief period of the provisional government, of such fundamental importance in the history of the new federal republic. In many respects it was a fruitful period of transition, but in others it was a period during which seeds of abuses and dissensions were sown that came to fruition during the first troubled years of the republic under the constitution, an era of virtual military dictatorship and of serious disturbance, retarding the progress of the country at the very outset of its march as a republic.

*The Dictatorships of Deodoro da Fonseca and
Floriano Peixoto, 1891-1894*

Marshal Manuel Deodoro da Fonseca, the son of an army officer and himself an army man since entering the military academy in 1843 at the age of sixteen, was at the time of his election by the congress nearly

sixty-four years old. However inevitable his position as chief of the revolutionary government may have been after the outstanding rôle he played in the overthrow of the old order, he was not the man to fit well into the constitutional régime that now rested on the belated organic law promulgated on the day before his election. He had already aroused bitter opposition on all sides by his arbitrary acts as chief of the provisional government and his exaltation of the military over the civil elements. In January, 1891, he had already broken with his civilian cabinet, who resigned in a body. Now he began to quarrel almost immediately with the congress, in which, while still sitting as a constituent assembly, pronounced opposition against his autocratic methods had already developed.

Matters went from bad to worse until the conflict between the executive and the congress culminated in a decree of the president on November 3, 1891, dissolving the congress and frankly assuming the dictatorial powers which he had as a matter of fact been ruthlessly exercising almost from the first days of the republic. Now, not only did the constitution not give the president any power to dissolve the congress, but in the transitory provisions it had been expressly declared that the congress was "under no circumstances subject to dissolution." Here, therefore, within less than nine months after the inauguration of the new constitutional system, the president was simply setting aside that instrument.

This revolutionary procedure Deodoro justified on the ground of the hostile attitude of the congress and the existence of plots for the restoration of the monarchy. But aside from the executives whom he had put in at the head of the state governments, the last



Santa Theresa Hill—A Favorite Residence Section of Rio.

state constitution having been promulgated by a state legislature in August of 1891, no substantial elements in the country acquiesced in this *coup d'état*. Open revolt broke out in various parts of the country, the army itself failed to unite in the support of the dictator, and the navy took the lead in forcing his hand. Civil war was inevitable when the warships in the harbor of Rio de Janeiro under the command of Admiral de Mello threatened to shell the city. The president in the face of this formidable opposition resigned his post on November 23, having launched the young republic on a path of violence and illegality that proved an almost fatal heritage.

Under the constitution the vice-president succeeded to the office made vacant by the resignation of Deodoro. This officer, Floriano Peixoto, like his predecessor a native of the former province of Alagoas, and, also like his predecessor, a soldier by profession, a marshal in the army, and a leader in the revolutionary events of November 15, 1889, soon proved to be like him also in his inability to govern constitutionally. First of all he deposed the state executives who had approved the action of Deodoro in dissolving the congress. This paved the way for the practice of intervening in the affairs of the states on the slightest pretext, which was one fruitful cause of disturbance in the succeeding years of the republic. Intervention and the suspension of constitutional guaranties, by the declaration of a state of siege, those two great emergency powers granted to the federal government by the constitution of February 24, 1891, were so freely invoked by Floriano as to constitute the rule instead of the exception. In part, it is true, they were the result of disturbances in the states and in the fed-

eral district, but to an equal and perhaps greater extent they were the cause of outbreaks in all parts of the country.

The most glaring example of Floriano's disregard of the constitution was his determination to continue in office until the end of the term for which Deodoro had been elected, in spite of the explicit provision of the constitution that if a vacancy occurred in the presidency during the first two years of the term, the vice-president should succeed to office only provisionally until a new election could be held. In his determination to ignore this provision of the constitution, Floriano was, it is true, supported by a majority of the congress, but he exercised an iron hand over the congress itself, even going so far as to arrest and deport various members of the opposition under the state of siege he declared in April, 1892. This illegal violence toward members of the legislative branch which, by the terms of the constitution itself was expected to pass judgment upon the validity of a state of siege declared by the executive in the recess of the congress, though likewise subsequently "legalized" by vote of the browbeaten legislature, formed another important count in the indictment brought against Floriano by the opposition charging flagrant violation of the constitution.

In Rio Grande do Sul, that turbulent region of almost chronic disturbances, the deposition of the state president following the retirement of Deodoro, caused a renewed outbreak in June, 1892, which, under the leadership of Gumercindo Saraiva, a famous "gaucho" or cow-boy leader, threatened the authority of Floriano. The navy again assumed the leadership of the overt opposition to the president in the so-called

“naval revolt” of September 6, 1893. Admiral de Mello, who had forced the resignation of Deodoro almost two years before, now raised the standard of revolt against Floriano on the warship *Aquidaban* in the harbor of Rio.

In his proclamation, Admiral de Mello pointed to the flagrant violations of the constitution by Floriano and to the corruption and illegality of his administration in general. The navy, whose chief grievance probably was the privileged position occupied by the army under Deodoro and Floriano, joined the revolt almost in a body, and the minority members of the congress as well as other prominent civilians flocked to his standard.

It was the hope of the insurgents that the naval demonstration would suffice to drive Floriano from office as it had sufficed to cause Deodoro to resign. But the “iron marshal” was not to be intimidated, and, supported as he was by a majority of the congress and the bulk of the army, he immediately took the necessary steps for an effective resistance and energetic offensive. Even so, his position was precarious, for the insurgents controlled the harbor, and the capital was practically at the mercy of the guns of the warships. But this advantage was destroyed by the joint action of the naval commanders of the forces of the United States, France, Italy, and Portugal in the harbor of Rio de Janeiro, who threatened to oppose by force any move to bombard the city. Likewise the attempt of the insurgents to set up a blockade of the harbor was nullified by the declaration of the American naval commander, Admiral Benham, that he would fire on any insurgent vessels attempting to interfere with the landing of goods from American ships.

On October 23, 1893, Admiral de Mello informed the American minister to Brazil, Mr. Thompson, that the insurgents had established a provisional government in the capital of the state of Santa Catharina, Des-terro, or Florianopolis as it is now called, and requested a recognition of belligerency. But this recognition the government of the United States refused, and de Mello, being prevented by the associated naval commanders from attacking the city, on December 1 ran past the fort at the entrance to the harbor in his flagship and sailed south to join forces with the insurgents in Rio Grande do Sul. In command of the insurgent fleet at Rio he left Rear Admiral Luis Felipe de Saldanha da Gama, who not only espoused the cause of the revolution but also of the restoration of the empire. But although this represented the view of some of the insurgents, the revolt was not in its inception nor in the purposes of the great mass of its adherents an attempt at monarchical restoration.

Early in 1894 the revolt came to an unsuccessful end. Da Gama, cooped up in the harbor of Rio and exposed to the fire of the shore batteries, saw himself further menaced in March by the arrival of the ships which Floriano had ordered abroad immediately upon the outbreak of the revolt. On March 13 da Gama sought refuge with his men on board the Portuguese cruisers in the harbor. On the 16th of April the revolt was given up in Florianopolis, and de Mello sailed to Buenos Aires and surrendered the vessels still left in his command to the President of Argentina. The revolt in Rio Grande do Sul met with disastrous reverses in the attempt to march northward through Paraná and São Paulo, and Saraiva was killed on his retreat southward. This practically ended the revo-

lution there, though fighting continued for more than a year, until August, 1895.

While the revolt was still in full swing there occurred the first popular election for president to choose a successor to Floriano, whose term was to expire on November 15, 1894. The successful candidate was Senator Prudente José de Moraes Barros, the president of the constituent congress who had polled 97 votes in the election by congress in 1891. Six months elapsed between the popular election in which he was chosen and the end of the term of Floriano, six months during which the revolt was finally crushed and the country brought completely under the domination of the forceful executive. It was feared and quite generally believed that, strongly intrenched as Floriano was, he would not be ready to turn over the office to his successor, especially as he had not shown himself very mindful of constitutional restraints during his incumbency. But on the appointed day he quietly turned over the government to his constitutional successor and retired to private life; a most re-assuring *finale*.

In spite of the high-handed manner in which Floriano retained his place as successor to President Deodoro, in spite of his autocratic and unconstitutional treatment of the congress, in spite of his fatal interference in the politics of the states, and in spite of the corruption and malfeasance of his agents, Floriano deserved some at least of the plaudits which have since been accorded to his conduct of public affairs. His energetic and effective crushing of the naval revolt of 1893 probably saved the country from a long series of revolutionary disturbances, and his orderly surrender of power to his duly elected successor some-

what neutralized the effect of his illegal continuance in office at the outset.

But it was the inevitable consequence of the disturbed three and a half years that had elapsed since the proclamation of the constitution that the country as a whole was left in a most critical condition. Factionalism, personal hatreds, and governmental abuses that had flourished in this period were passed on as deadly heritages to the succeeding years, and some of the sores caused by the practices of that troubled era are not fully healed even yet. The foreign debt of Brazil, already over thirty million pounds sterling at the time of the overthrow of the monarchy, was increased by 3,700,000 pounds sterling in 1893. The unfortunate practice of regular annual deficits in the national budget, already well established under the empire, was continued and even intensified in those first disturbed years of the new régime. "Government by deficit" became a characteristic of the republic as well as of the empire.

But in other respects, in spite of the serious handicaps resulting from the disturbed character of the period, there was marked progress. Exports, temporarily reduced below imports, owing to the loss in production resulting from the emancipation of the slaves in 1888, again provided a favorable trade balance. Best of all, the years 1891 to 1894 saw the addition of some 1,500 miles to the extent of railroads in operation, and many more miles in construction. Important legislation was also put on the statute books, especially in the form of organic laws executing provisions of the new constitution, so that this introductory period of adjustment was not by any means a wholly barren one on the constructive side.

The Civilian Presidents, 1894-1910

3 Prudente de Moraes proved an energetic and able president (1894-1898), but he had to struggle against great odds. The disgruntled military elements were always ready to cause trouble, and although the revolt in Rio Grande do Sul was definitely quelled in 1895, a serious rebellion broke out in the backwoods of Bahia, which, led by a half-insane religious fanatic, Antonio Maciel, required an army of 15,000 for its suppression. Intervention in the states and the declaration of states of siege became indispensable means for keeping order, and even these did not always suffice. In the third year of his term he was attacked by an assassin and narrowly escaped death. On the side of foreign relations the president reestablished diplomatic relations with Portugal, which had been broken by Floriano early in 1894 in anger at the asylum afforded by the Portuguese cruisers to the naval insurgents. He likewise settled favorably to Brazil the controversy that arose with Great Britain over the occupation by the latter of the island of Trinidad, 800 miles east of Rio de Janeiro.

In the matter of national finances, which were so desperately in need of rehabilitation, the president was unable to effect any improvement. He tried first to meet the situation by the emission of 2,000,000 pounds' worth of gold treasury certificates and 100,000,000 milreis in internal bonds, in May, 1895. But two months later a foreign loan was authorized which was floated early in 1896. This loan was for 6,000,000 pounds sterling, but as it was issued at 85 per cent it cost 7,442,000 pounds. Meanwhile the general financial crisis and the continued issuance of unsecured

paper currency had so prejudiced the exchange value of the milreis that one-third of the regular revenues of the country were needed to pay the difference caused by the drop of the milreis in the gold payments on the foreign debt.

President Prudente de Moraes saw the country at the end of its financial rope. There was no money to meet the next interest payments, Brazilian bonds were tumbling in the London market, and a suspension of payments involved the threat of foreign intervention in the administration of affairs. Under these critical circumstances the president requested Manuel Ferraz de Campos Salles, who had been elected president on March 1, 1898, to succeed President Prudente de Moraes on November 15 of that year, to proceed to Europe and attempt some settlement with the creditors of Brazil that would avert the calamity of a suspension of payments. Through the skillful negotiations of the president-elect there was arranged the funding loan of June 15, 1898, a financial achievement of prime importance.

By the terms of this loan, which saved Brazil from financial disaster, the bonds were sold at par, an achievement equaled only once before in the financial history of Brazil, for a total of 8,613,717 pounds, with interest at 5 per cent, amortization at $\frac{1}{2}$ per cent a year and a term of 63 years, the loan being secured by collections in gold of import duties. Interest payments were postponed for three years and amortization payments for ten years. These terms, which were very much more favorable than those at first offered by the bankers, bore witness both to the financial capacity of the president-elect and to the confidence which the bankers felt in that capacity, a confidence which was

proved to be well-founded by his activities as president.

Manuel Ferraz de Campos Salles (1898-1902), lawyer and politician, was, like his predecessor, a son of São Paulo, and was president of that state at the time of his election to the presidency of Brazil on March 1, 1898. He assumed office on the constitutional date, November 15, after his return from the successful financial negotiations carried on by him in Europe. His administration, though not devoid of praise in other respects also, was chiefly notable for the faithful and successful execution of the measures necessary to reestablish the credit and finances of his country. He made ruthless reductions in public expenditures, burnt large quantities of the depreciated paper currency, and at the time that the first specie payments were due under the funding loan, in 1901, there was deposited in gold in London from the customs receipts more than enough to meet the obligations.

How successful Campos Salles was in reestablishing the national credit is best shown by the fact that he was able in 1901 to float a new loan of 16,619,320 pounds at par for a term of 60 years, yielding only 4 per cent interest, the most favorable terms ever obtained. These bonds were issued for the purpose of expropriating the railway lines that had been built under the laws of the empire guaranteeing interest, and hence were known as rescission or rescinding bonds. In spite of these new loans the exchange value of the milreis was at the close of his term in 1902 almost the double of what it had been four years earlier.

In 1901 Brazil was represented as a republic for the first time in a Pan-American Conference, that of Mexico City, known as the Second Pan-American Con-

ference. At the First Pan-American Conference in Washington in October, 1889, Brazil was represented, it is true, but still as the only monarchy among the American states. During the administration of Campos Salles the arbitral award by the president of Switzerland finally settled the boundary controversy with French Guiana, and relations with the Argentine Republic were strengthened by his visit to that country in October, 1900. But the great achievement of Campos Salles was that of the reëstablishment of the national finances, an achievement which occupied his energies pretty fully, but paved the way for an era of progress during the next quadrennium.

Francisco de Paula Rodrigues Alves (1902-1906) was the third Paulista in succession to be elected to the highest office in Brazil. He also had been a deputy from his province in the days of the empire, a member of the constituent assembly of 1890, a cabinet minister and federal senator during the first years of the republic, and president of his state at the time of his election to the presidency. He was an able, energetic, and patriotic statesman, and in many respects his four years in office were the most progressive and prosperous that the republic has witnessed. But in lauding his accomplishments it must not be forgotten that he built on the firm foundations laid by his predecessor, and that without the successful financial accomplishments of the latter he could not have devoted his attention so fruitfully to schemes of improvement.

The most striking achievement of his administration was the transformation of the capital, Rio de Janeiro. Though by this time the urban portion of the Federal District, that is, the city of Rio de Janeiro proper, had reached the metropolitan proportions of

over 600,000, its physical and hygienic conditions were of the worst. The port facilities in this most wonderful of natural harbors were woefully inadequate, the business section of the city was congested and poorly served with narrow streets, and yellow fever was still virulent, nearly 600 people having died of this disease alone in 1903. Magnificent harbor works were instituted and a great broad avenue cut through the heart of the congested business portion, while other boulevards and parks were laid out under the direction of the prefect of the District, Francisco Pereira Passos. Under the able and energetic direction of Dr. Oswaldo Cruz, backed by the strong arm of the president, yellow fever was completely stamped out and the sanitation of the city improved in all directions. For the port works another foreign loan was negotiated in 1903 for 8,500,000 pounds which netted 7,860,000, with interest at 5 per cent, for a term of 32 years and amortization at $1\frac{1}{2}$ per cent.

Other loans negotiated by President Rodrigues Alves increased the foreign debt of Brazil, which at the close of the preceding quadrennium had totaled 59,042,137 pounds, to 70,930,237 pounds, which before the close of his term he reduced to 69,961,477. He likewise reduced the internal indebtedness and increased the sinking fund by 50 per cent, so that in spite of large expenditures for public improvements, the country was left in a sound financial condition and the exchange situation favorable; a faithful mirror of sound government finance.

In the important field of railroad construction, which had slowed up somewhat in the financially critical years of the preceding administration, another 1,000 miles were put into operation, and construc-

tion undertaken that caused the increase in the next quadrennium to be even greater.

Noteworthy as were the achievements in the internal administration of the country during the presidency of Rodrigues Alves, they were equaled in importance by the accomplishments in the field of foreign relations. These were directly attributable to the skill and forcefulness of Baron Rio Branco, who became minister of foreign affairs in 1902 and remained in that important post for ten years, until his death in 1912. He had already distinguished himself in the preparation of the Brazilian brief in the controversy with Argentina over the territory of the *Misiones*, settled favorably for Brazil by the arbitral award of President Cleveland in 1895. He was likewise counsel for Brazil in the controversy with France over the boundary between Brazil and French Guiana, settled favorably for Brazil by the arbitral decision of the president of Switzerland in 1900.

During the incumbency of Rodrigues Alves, due to the efforts of Rio Branco as foreign minister, the dispute with Bolivia over the Acre Territory was amicably settled by treaty after threatening to plunge the two countries into war. By this Treaty of Petropolis of 1903, the provisions of which are detailed in the discussion of the national boundaries in the first chapter, Brazil acquired a rich rubber region on the upper tributaries of the Amazon. In the next year a boundary treaty with Ecuador was concluded and the decision of the King of Italy handed down in the dispute with Great Britain over the boundaries of British Guiana. In 1904 Brazil made a splendid showing with her national building at the World's Fair in St. Louis, and in the closing months of the administra-

tion of Rodrigues Alves, July and August, 1906, Brazil was host to the Third Pan-American Conference, made notable by the presence of Secretary of State Elihu Root. This conference was held in the Monroe Palace, the same building which had been used as the Brazilian national building in the St. Louis Fair and had been transported stone for stone to Rio de Janeiro and christened in honor of the American president who had enunciated the famous doctrine that bears his name.

(4) Affonso Augusto Moreira Penna (1906-1909), elected president on March 1, 1906, following after three distinguished Paulistas, was himself a Mineiro, as the sons of the great state of Minas Geraes are called. A graduate in law, he had been active in politics during the empire and had even served as cabinet minister in three different portfolios during the years from 1882 on. Nevertheless, he was a representative from Minas in the republican constituent convention and served as president of his native state, president of the Bank of Brazil, and vice-president of the republic in 1903. The financial condition of the country continued on a sound basis during his administration and the exchange situation still further improved. He continued the amortization of the rescission bonds of 1901, the only foreign obligations which Brazil was obliged to amortize annually under the terms of the funding loan of 1898, which postponed that obligation for ten years. In 1907 he secured a loan of 3,000,000 pounds in London, netting only 2,850,000 pounds, on behalf of the state of São Paulo for the valorization of coffee, which was then passing through an acute crisis. In 1908 another loan of 4,000,000 pounds was obtained at 96, with interest at 5 per cent, and a term

of ten years. A third loan was obtained in France of 100,000,000 francs at par with interest at 5 per cent, and a term of 54 years for railroad construction. This brought the total foreign debt of Brazil up to 75,943,957 pounds sterling plus 100,000,000 francs.

Perhaps the outstanding achievement of the administration of Affonso Penna was the creation of the Caixa de Conversão, or Bank of Conversion. This institution was opened in December, 1906, and its function was to issue paper notes against gold deposited with it by the government or individuals redeemable at a fixed rate of 15 pence or about 30 cents in gold for every milreis. The purpose of this institution was to stabilize the rate of exchange and gradually to put the currency of the country on a gold basis. Though severely attacked at the time, partly because the project was bound up with the plan of coffee valorization by the federal government, this institution started out auspiciously, and while the circulation of this gold secured paper increased, the amount of inconvertible paper in circulation steadily decreased from 665,000,000 milreis in 1906 to a little over 600,000,000 milreis in 1912, in which year the convertible notes of the Caixa de Conversão in circulation had reached over 400,000,000 milreis, or more than two-thirds of the value of the inconvertible paper. The outbreak of the European War definitely put a stop to this development by necessitating immense issues of unsecured paper and the suspension of the activities of the Caixa with the practical disappearance of its notes from circulation.

President Affonso Penna died on June 14, 1909, nearly a year and a half before the expiration of his term of office, but his brief administration witnessed

a continued improvement in the general economic condition of the country in spite of the crisis in the basic activity of coffee production, due to the enormous and unprecedented crop of 1906. Immigration, stimulated both by the federal and the state governments, reached 94,693 in 1908, the largest figure since 1897. The total foreign commerce of the country attained unprecedented proportions, and the favorable trade balance steadily maintained by Brazil since 1891 amounted in 1909 to 423,785,000 milreis. Another 1,200 miles of railways were put into operation and an equal number were under construction at the time of President Penna's death.

This favorable development was not interrupted upon the succession to the presidency of the vice-president Dr. Nilo Peçanha. On the contrary, though another 140,000,000 francs were borrowed in Paris early in 1910 for railroad construction and port works, and an additional 10,000,000 pounds for the liquidation of an internal gold loan of 1879, the general financial condition of the country was reflected in a rise of more than an English penny in the value of the milreis in foreign exchange.

But on the political side conditions were not so promising. The Conservative Republican Party, which had replaced the Federal Republican Party as the dominant machine, was under the control of an astute and powerful political boss from Rio Grande do Sul, Pinheiro Machado. This chief supported for the candidacy to the presidency, for which an election was due on March 1, 1910, Marshal Hermes da Fonseca, nephew of Deodoro, the revolutionary chief of the republic and its first president. Marshal Hermes had served as minister of war in the cabinet of

Affonso Penna, and though his military capacity was unquestioned, his selection for the presidency marked a retrogression in the direction of political supremacy of the military element.

In protest against this tendency Dr. Ruy Barbosa, popularly styled the Father of the Brazilian Constitution, a constitutional lawyer of outstanding ability and unexcelled as a writer and speaker on the public platform, announced his candidacy in opposition to Marshal Hermes and militarism in general. The campaign was a remarkable one from many points of view, in fact it was the first in which a candidate stumped the country setting forth his platform. The popular vote was almost 2 to 1 in favor of Hermes, but the supporters of Ruy Barbosa were loud in their protests against fraud and duress at the polls and made a determined attempt in the congress, when it met in May, 1910, to canvass the vote, to secure the success of the civilian candidate. The political machine which controlled the popular vote naturally had a safe majority in the congress, and Hermes was declared elected by 405,867 votes to 222,822.

*The Recrudescence of Militarism—Hermes da
(7) Fonseca (1910-1914)*

Marshal Hermes Rodrigues da Fonseca (1910-1914), whatever may have been his military accomplishments, proved unable to keep up the standard of political and administrative probity attained by the civilian presidents. Corruption and extravagance marked the quadrennium of his administration and the state of siege and intervention in the affairs of the states became means of political domination and oppression.

Foreign loans, at figures well below par, increased the indebtedness of this character by nearly 18,000,000 pounds sterling and 60,000,000 francs. A new loan of 25,000,000 million pounds was attempted, but the outbreak of the European War interfered and Brazil was compelled to have recourse to a second funding loan of 15,000,000 pounds and to suspend specie payments for another period of three years. At the close of the administration of Hermes da Fonseca the total outstanding obligations were more than 100,000,000 million pounds sterling and 300,000,000 francs. In the closing year of his administration, moreover, Hermes again resorted to the issue of unsecured paper currency to the amount of 250,000,000 milreis, the first emission of such currency since 1899. This proved to be a most serious mistake.

In spite, however, of the defects of the political and financial administration of the country, the four years from 1910 to 1914 saw an uninterrupted progress in the economic development. In the years 1911, 1912, and 1913, the immigration reached the record figures of 136,000, 180,000, and 192,000 respectively, the latter figure representing the largest number of immigrants ever received in one year into Brazil, with the single exception of 1891. In the four years from 1910 to 1914 the railway mileage put into operation amounted to almost 3,000 miles, and the total foreign commerce in 1912 reached the record total value of over 2,000,000,000 milreis. Before the end of Fonseca's term the European War had broken out and his successor inherited not merely the problems of administrative and financial reform created by the irregular practices of Marshal Hermes but also those raised by the World War.

*From the Outbreak of the World War to the
Centenary of Independence, 1914-1922*

Wenceslau Braz Pereira Gomes (1914-1918), though owing his election in 1914 to the same forces that had espoused the candidacy of Hermes da Fonseca in 1910, and opposed at the polls by Ruy Barbosa who had waged such a spectacular campaign against Fonseca, evidenced the return to civilian presidents. He was a native of Minas Geraes, had served as president of that state, and was elected vice-president of the nation in 1910 on the ticket headed by Fonseca. He assumed office on November 15, 1914, and was from the outset confronted with a serious financial situation demanding immediate attention.

The immediate effect of the outbreak of the War on Brazilian national finances can best be appreciated when it is recalled that the value of Brazilian imports from Germany in 1913 was 176,061,000 milreis, exceeded only by the value of imports from Great Britain, which latter country was being rapidly displaced by Germany as the principal source of exports to Brazil. Import duties at that time constituted the major source of revenue for the federal government, and when the value of imports in 1914 fell to but a little over half of the value in the preceding year, the effect on the national revenues was disastrous.

New sources of revenue had to be attacked, and when these proved wholly insufficient to wipe out the growing deficit, recourse was had to the desperate expedient of issuing unsecured paper money. In 1915 the sum of 350,000,000 milreis was issued and in 1917 an additional amount of 200,000,000 milreis, which together with the 250,000,000 issued at the close of

Fonseca's administration added 800,000,000 milreis to the 600,000,000 in circulation in 1912 and in process of being retired. By the end of 1918 the total outstanding unsecured paper currency amounted to 1,679,000,000 milreis, still further increased in the following year. This situation, together with the consistent deficits in the national budget, and the greatly reduced value of exports in 1914, caused a decline in the foreign exchange value of the milreis, imposing still further burdens on the national treasury.

In 1915 the value of Brazilian exports jumped again to over a billion milreis, in spite of the fact that Germany, which ranked in 1913 second in the value of goods received from Brazil, had disappeared from the market as a result of the war. The value of exports was even larger during the three succeeding war years, 1917 registering the largest values up to then realized. Imports also began to pick up from the low ebb reached in 1914, though more slowly. The favorable trade balance and the lowered exchange rate inured to the benefit of the exporters, particularly of the coffee planters, but all importers and especially the government, which forever had the specter of gold payments due on the foreign debt hanging over it, in spite of a temporary postponement and respite realized from the funding loan of 1914, went from bad to worse. The state of Brazilian manufacturing, though showing a marvelous progress in the opening years of the twentieth century, had not yet reached a condition where even the essential manufactured articles could be supplied in the country, and to the higher prices caused by the fall in exchange were added the burdens of the enormous rise in prices due to the war

conditions. And for the same reason the wealth of the country could not share greatly in the tremendous boom that came to other neutral countries where raw materials and manufactured articles essential to the conduct of the war were produced.

In still another respect the war conditions caused an immense prejudice to a country as desperately in need of the expansion of transportation facilities as was Brazil. Steel rails, rolling stock, and coal, needed for extensions, to say nothing of replacements, simply could not be had except at prohibitive prices. During the years 1915-1918 only 500 miles of new railroad were put into operation, while the existing lines deteriorated and in some cases had to suspend operation. This was less than the normal construction in a single year in the preceding period.

Similarly the normal flow of immigrants essential to the development of her agriculture and industries was all but cut off during the war years. From the record figure of 192,683 immigrants in 1913, the number dropped to less than half of that in 1914, and the total immigration during the four years 1915-1918 was less than two-thirds as much as in the single pre-war year.

Brazil remained neutral in the Great War for over three years. Intellectually and culturally Brazil was bound by the closest ties to France, and the sympathies of her intelligentsia were, therefore, naturally on that side from the very outbreak of the European struggle. A pro-Ally League was formed early in the war and substantial aid was furnished to the Red Cross activities of the allied armies. On the other hand, German commercial and financial relations with Brazil had been developing by leaps and bounds and

German immigrants had formed a valuable though numerically small contribution to the foreign influx into Brazil since the middle of the nineteenth century. The minister of foreign affairs himself was a Brazilian of German descent, Dr. Lauro Müller, from the state of Santa Catharina where the German colonies were most numerous.

Brazil protested against the German announcement of unrestricted submarine warfare in January, 1917, and the sinking of Brazilian ships under that policy led in April, 1917, to the severing of diplomatic relations and the seizure of nearly fifty German ships that were tied up in the ports of Brazil. Nevertheless Brazil still remained neutral and even after the United States entered the war, on April 6, Brazil issued a declaration of neutrality. But when it became clear that Germany did not intend to abstain from sinking Brazilian ships nor to make amends for those already sunk, Brazil revoked her declaration of neutrality, and October 26, 1917, after the news of the sinking of another Brazilian ship had been received, the Brazilian Congress adopted a resolution, with but one dissenting vote, recognizing the existence of the state of war initiated by Germany.

The measures necessary under the new state of affairs occupied the attention of the government fully during the remainder of the term of President Braz. While Brazil was not in a position to equip an expeditionary force and shipping facilities were by this time monopolized by the transportation of materials and troops from the United States, a number of Brazilian aviators joined the Allied forces, and a Brazilian naval squadron was sent to European waters for co-operation with the Allied fleets, and in addition some

hospital units and a number of physicians went across. More important was the aid resulting from the increased production and export of badly needed food supplies. Sugar, which after bulking large among the exports of Brazil in the closing years of the empire, had dwindled to almost nothing in 1913, jumped from 54,000 tons in 1916 to 138,000 tons in 1917 and 115,000 tons in 1918. Chilled and frozen meats, which prior to the outbreak of the war had not figured among Brazilian exports at all, jumped to third place in the value of the products exported, while beans, which had prior to the war been raised only in sufficient quantities to supply the domestic demand, became in 1917 and 1918 one of the principal articles of export.

The armistice of November 11, 1918, preceded by four days the expiration of the term of office of Wenceslau Braz, who was thus Brazil's War President. In March of that year a new precedent was established in Brazilian national politics by the reelection to the presidency of Rodrigues Alves, who had served with such distinction in that high office from 1902 to 1906. The Brazilian constitution makes the president ineligible for immediate reelection but does not forbid such reelection after the lapse of a term. The reelection of Rodrigues Alves in 1918 was, however, the only instance of that character in the history of the republic.

Unfortunately the president-elect, already in his seventieth year when this signal distinction was conferred upon him, was too ill to assume office on November 15, 1918. Accordingly the vice-president-elect, Delphim Moreira da Costa Ribeiro, exercised the powers of the office. President Rodrigues Alves died on January 16, 1919, and in accordance with the

requirement of the constitution a new election for president was held in April. The candidate selected by the convention or caucus of the Republican Party was Dr. Epitacio da Silva Pessoa, a native of the state of Parahyba, deputy from that state in the constituent congress of 1890 and in the first congress. Successively minister of justice and internal affairs under Campos Salles, justice of the Federal Supreme Court, and federal senator from his native state, Epitacio Pessoa had been appointed head of the Brazilian delegation to the Versailles Peace Conference early in 1919, which post he was occupying at the time of his selection for the presidency. He was opposed by Ruy Barbosa, the unsuccessful candidate in the elections of 1910 and 1914, but was elected by a majority of more than two to one and assumed office on July 28, 1919.

If the presidency of Wenceslau Braz presented abnormal conditions in many respects because it covered the four years of the World War, the presidency of Epitacio Pessoa embraced the no less abnormal post-war period. Exports in 1919 attained a value of over 2,000,000,000 milreis, almost the double of the highest mark attained up to that time. Imports in that year, though also constituting a record value higher than any ever attained before, fell some 666,000,000 milreis below the value of exports. In the next year, however, the situation was reversed. The post-war boom led to enormous purchases abroad, bringing the total value of goods imported into Brazil up to over 2,000,000,000 milreis, whereas the value of the exports had diminished to 1,752,000 milreis. The world-wide depression hit Brazil in the midst of an unprecedented era of activity with disastrous results.

In 1921 both exports and imports fell enormously both in tonnage and in value. The total foreign commerce of Brazil in 1921, measured in pounds sterling was, owing to the fall in the value of the milreis, just a little over half as much as in 1920, and considerably less than in the pre-war year of 1913.

In the field of national finances, the three years of the presidency of Epitacio Pessoa, riding on the wave of post-war prosperity, were a period of reckless expenditure. In addition to the more than 100,000,000 pounds sterling owed in England and to the 322,000,000 francs owed in France, the bonded foreign debt of Brazil was increased in this period by 75,000,000 dollars borrowed in the United States. In addition, the internal funded debt had risen to 1,551,743,300 milreis, an increase of 50 per cent since the end of 1919, and new issues of paper money had been resorted to. The total amount of floating indebtedness of the country at the end of President Pessoa's term was not even definitely known.

Much of this additional expenditure was for purposes that were absolutely essential, as for instance, the rehabilitation of the railways which had fallen into a highly critical condition during the war. Much of it was for purposes that were of pressing importance, as the subsidies for public education and public health in the states. Much of it was for constructive work that in the long run would yield large if not equal returns, as the valorization of coffee, the extensive port and irrigation works in the drouth sections of northeastern Brazil, and the construction of new railways. Practically all of it was for purposes that were meritorious in themselves and that would have been fully justified in an era of financial prosperity, such

as appeared to be in full swing when they were inaugurated, as for example the plans for the International Exposition to commemorate the Centennial of Brazilian Independence.

But, unfortunately, not all of the expenditures were wisely or economically administered, and all of them continued into a time of severe financial crisis. Government expenditures increased enormously at the same time that government revenues suffered a sharp decline and the annual deficits assumed more and more alarming proportions. The exchange value of the milreis steadily declined and the government found itself compelled to abandon some of the projects which it had begun and even failed to inaugurate some of the undertakings for which money had been specifically borrowed, as for the electrification of the government owned Central Railway.

While the Centennial Exposition served to bring Brazil into closer relation with all the countries of the world and so to strengthen her foreign relations, internal politics suffered an unfortunate crisis. In March, 1922, occurred the popular election to select a successor to President Pessoa. This was the most bitterly contested election ever held in Brazil, not excepting the one of 1910 with which it had some curious points in common. The candidate of the Republican Party Convention, or congressional caucus, was Dr. Arthur Bernardes, president of the state of Minas Geraes. After his selection, the minority group, which styled itself the "Reacção," headed by Dr. Nilo Peçanha, senator from the state of Rio de Janeiro, former vice-president, and acting president from 1909 to 1910 upon the death of President Affonso Penna, and minister of foreign affairs in 1917 under

President Wenceslau Braz, waged a bitter campaign which soon took the form of a concerted attack by the political militarists headed by former President Hermes da Fonseca.

In the closing months of the administration of President Pessoa, after the Congress had duly declared Dr. Bernardes legally elected, an extensive plot was discovered to prevent Bernardes from assuming power by seizing the government by a military coup, making Fonseca provisional chief and calling a new election. The plot was frustrated by the energetic action of President Pessoa, but not in time to prevent a revolutionary garrison in the concrete coast defense fortress of Copacabana, under the command of the son of Hermes da Fonseca, from firing upon the city in the night of July 5. The fortress was quickly reduced to submission, the revolts in the military academy and naval aviation school stamped out, and the concerted movements in other parts of the country suppressed. But the situation necessitated the declaration of a state of siege in the capital and the neighboring state of Rio de Janeiro, which continued down to the close of President Pessoa's administration and into the opening months of the administration of President Bernardes.

The military revolt of July 5 and 6, 1922, was regarded as the last desperate attempt of the military politicians to reassert the position of domination which they occupied in the first years of the republic and which they succeeded in reasserting in the elections of 1910. But it was extremely unfortunate that these events should have occurred just at the time when the eyes of the world were centered upon Brazil by reason of her centennial exposition in which the

leading countries took an active part, and that the suspension of constitutional guaranties resulting from the declaration of a state of siege should have been in effect in the capital of the country at the time when missions and delegations from all the major countries of the world were present in Rio to extend their congratulations to Brazil upon the completion of a hundred years of independence.

By reason of her participation in the World War and in the signing of the Treaty of Versailles, Brazil had taken her rightful place among the great powers of the world, and her place on the Council of the League of Nations as the only country of the western hemisphere to be so represented, strengthened the place which her able representation in the second Hague Conference had already secured her. Her most distinguished public lawyer had already been honored with election to the Permanent Court, and her position of leadership among South American nations reinforced. All the more unfortunate, therefore, was the outburst of criminal violence which was calculated to shake public confidence in the stability of Brazilian politics. The prompt suppression of the outbreak, however, and the solidarity with which the law-abiding elements, even those who had been opposed both to President Pessoa and to the president-elect, supported the energetic measures of the government, served in great measure to consolidate the confidence which had been temporarily shaken.

The Presidency of Dr. Arthur Bernardes (1922-)

When President Bernardes assumed office on November 15, 1922, he found the country in a critical condition. Financially it was in extremities. Eco-

nomically it was still suffering from an acute crisis. Politically it had still to deal with the rebellious elements involved in the military revolt of July. In the neighboring state of Rio de Janeiro political conditions were bordering on anarchy which prompted intervention by the federal government in January, 1923. In the extreme southern state of Rio Grande do Sul armed rebellion had broken out against the state government which had just perpetuated its twenty-five years of power by a new election.

Fortunately, the new president was a man both able and willing to meet the critical conditions with energy. As president of his native state of Minas Geraes, Dr. Bernardes had brought the state finances out of a condition of chronic deficits into one of budgetary balance. He courageously announced a policy of strict economy. All undertakings calling for financial outlay were cancelled where possible, and reduced to the minimum figures where not capable of cancellation. The power to issue paper currency was transferred from the Treasury to the reorganized Bank of Brazil as the sole bank of emission on conditions analogous to those governing the emission of notes by the federal reserve banks in the United States. Administrative expenses of the government were reduced wherever possible, the collection of existing means of revenue was made more effective, and new sources of revenue were called into existence.

A period of retrenchment and reform, similar to that inaugurated by President Campos Salles when he found the finances of the country in desperate straits in 1898, though absolutely essential to the reestablishment of sound financial conditions, is never popular with the politicians nor with the elements that profit

from the expenditure of public funds. The opposition aroused in these powerful forces is not in a country like Brazil, where popular opinion has not yet become organized or even fully articulate, offset by any powerful support of the great mass of the population which profits by such measures, particularly as the benefits are of necessity slow in making themselves felt. But in view of the enormous resources of the country and of the gradual reestablishment of normal conditions in the commercial world, there is no question that the announced policy of President Bernardes, if successfully continued, will have beneficial results as striking as were those following the administration of President Campos Salles twenty-five years earlier, though like them they will not become generally apparent until after the expiration of his term of office.

The second century of Brazilian independence begins, therefore, in a period which, though extremely critical in many respects, carries with it the promise of steady improvement and portends a new era of progress and prosperity as soon as normal conditions have had a chance to reestablish themselves.¹

¹ After the above pages had been written there occurred the serious military revolt in the city of São Paulo, capital of the state of the same name, which broke out on July 5, 1924, just two years to a day after the occurrence of the military revolt at Rio de Janeiro described above.

This uprising was engineered by the same disgruntled elements that had supported the earlier plot in the federal capital. For three weeks the rebels maintained control of the city, causing loss of life, enormous destruction of property, and untold suffering. The federal forces, handicapped by the unwillingness of the government to subject a city of half a million people to the horrors of a bombardment, succeeded in forcing the rebels out on July 28. The latter fled in disorder into the western wilds of São Paulo and Matto Grosso, and at the time of writing were in process of being run down in scattered bands.

These events of July, 1924, bear out the analysis of the political situa-

tion of Brazil indicated in the preceding paragraphs. All of the respectable elements in Brazil deplored this most recent occurrence as sincerely as they had that of two years before. The entire country rallied to the support of the president and of established authority and the specious propaganda of the rebels failed to strike a response even from the political elements most emphatically opposed to President Bernardes.

The destruction of property, the interruption to industry and commerce, the extraordinary expenses incurred in putting down the revolt, unquestionably added still another heavy strain to the already overburdened financial fabric of the country. The compensations are to be found in the unanimous and spontaneous rallying to the support of law and order, "Order and Progress," as the Brazilian national emblem has it, and the additional deterrent to the lawless element resulting from another desperate attempt gone wrong. It is to be hoped that the Brazilian government will not show the same leniency to the ring leaders of this disturbance, which a mistaken policy of humanity or political expediency prompted it to take in regard to the leaders of the Rio revolt of 1922.

CHAPTER VI

THE GOVERNMENTAL SYSTEM

As has been seen from the preceding historical survey, the revolution of November 15, 1889, was not merely, or even chiefly, remarkable from the fact that it brought to an end the only real monarchy that ever existed in the western hemisphere. The change from monarchy to republic was simply bringing into line with the rest of the American states the governmental system of a country in which both the introduction and long continuance of the monarchical system were largely accidental. But the less obvious though really more significant change in the governmental system of Brazil was the change from a highly centralized unitary scheme to a broadly federal scheme. Accompanying this change, and in a measure connected therewith, was the abandonment of cabinet government with its political responsibility of the ministry to the legislature, for the presidential form in which the executive is an independent coördinate branch of the government.

Federalism had been the aspiration of a considerable number of the republicans, abolitionists, and other radical elements in the empire, and the practical nullification of the relief intended to be afforded to the stifled provinces by the *Acto Adicional* of 1834 had brought this question of the local self-government of the provinces strongly into the foreground. Ex-

treme exponents of the rights of the provinces had been very active in many of the revolutionary disturbances that threatened to disrupt the empire up to the middle of the nineteenth century. Federalism and republicanism marched hand in hand.

Hence, though the history of federations scarcely affords another example of the origin of a federal state by the partial dissolution of a unitary state, the process in Brazil was quite natural if very unusual. The United States, Germany, and Switzerland all developed into federal states from looser forms of union entered into originally by independent states, and the reversal of this process in Brazil inevitably gave a somewhat different aspect to the final outcome there.

Having definitely determined on a federal form of government, the framers of the Brazilian system had before their eyes a number of different models. The Swiss constitutions of 1848 and 1874 had exemplified one type of federal organization. The constitution of the German Imperial Federation of 1871 presented a somewhat different form of organization. Close by, the neighboring republic of Argentina had in 1860 adopted a republican federal type, and three years before that Mexico had definitely returned to the federal type of organization. But more potent than any or all of these examples, was that of the United States of America, whose constitution indeed had been the model on which all of the other federal constitutions enumerated above had been largely patterned. Not only the text of the United States constitution was known to the men chiefly instrumental in molding the Brazilian federal system, but also the operation of the more important features, and the modifications

that had occurred by way both of formal amendment and of political practice.

The Brazilian Constitution of February 24, 1891, is, therefore, to be viewed in the light of an adaptation of the Constitution of the United States, as amended and developed up to that date. But it is not to be viewed as a mere unthinking imitation, in spite of striking similarity in fundamentals and sometimes identity in phraseology. There are important departures from the American model, based either on a conviction that the feature departed from had proved unsatisfactory in the United States, or on a belief that the radically different conditions, political and social, existing in Brazil, called for a different treatment. Perhaps the best way to picture briefly the Brazilian governmental system in such a rapid survey as this is to emphasize the similarities and dissimilarities with the North American system on which it was based.

The Federal Features of the Brazilian System

The first point to note in connection with the Brazilian federal system is this: In spite of the fact that the states of the federation in Brazil were the creatures of the central government that succeeded to the imperial government, deriving their very existence as well as all their powers from the central authorities, the underlying theory of the distribution of powers between national and state governments is the same as in the United States where the process was the reverse and the national government existed and acted under powers surrendered to it by the states. This theory is that all powers of government not assigned to the national government are retained without special enumeration by the states. Or, in the

words of the Brazilian constitution itself: "The states shall have power to exercise in general any and every power or right not denied them by express provision of the constitution or contained by implication in such express provision."

(Examining in the light of this guiding principle first the powers which the Constitution assigns exclusively to the national government and therefore denies to the states, we find that practically every power granted by the constitution of the United States to the federal government is likewise granted in Brazil to the federal government. The taxing power, the power over interstate and foreign commerce, the conduct of all foreign relations, the power to make war, conclude peace and enter into treaties, the right to coin money, the regulation of weights and measures, postal and telegraph services, naturalization, the grant of patent and copyright privileges, the control of the armed forces of the nation, and others that might be mentioned, are the most important powers granted to our federal government and reproduced in the Brazilian constitution.

But in addition to the powers so granted, and in general it may be said that the federal government in Brazil enjoys all the powers assigned to the federal government in the United States, there are other important powers granted to the Brazilian federal government which are not so granted in the United States.

(Chief among these must be mentioned the general power to "legislate regarding the civil, commercial, and criminal law of the republic." This power of general legislation by the federal government is of the most fundamental significance in determining the rôle of the national government. It was granted to

the federal government in the Argentine constitution and to the federal government in the German imperial constitution of 1871. Its absence in the constitutional system of the United States has not only been increasingly deplored by the persons aware of the evils of 48 separate jurisdictions enacting distinct and oft-times conflicting laws on such matters as commercial law, marriage, and divorce, but has been generally recognized by foreign students of our federal system as a distinct weakness, destined in the course of time to be remedied.)

Two other powers granted by the Brazilian constitution to the federal government must be specifically mentioned, not so much because their grant to the national government in Brazil was a departure from the American model, but because the manner of their exercise has been so fundamentally different and so conducive to increasing the field of federal operation and influence. (These two powers are the powers of federal intervention and of the declaration of a state of siege, quite distinct in their nature, but in practice closely affiliated.)

The power of federal intervention is granted in the Brazilian constitution in negative terms, but while this phraseology tends to make the grant of this important power less striking on reading the constitution, it has not prevented it from being put into practice in scores of instances since the establishment of the federal régime. (The constitution of Brazil says in Article 6: "The federal government may not intervene in the affairs peculiar to the states, except: (1) To repel foreign invasion or that of one state in another; (2) to maintain the federal republican form; (3) to reëstablish order and tranquillity in the states, upon requisi-

tion of their respective governments; (4) to assure the execution of federal laws and judgments.” So far as the language employed is concerned, it is to all intents and purposes a repetition of language used in Article I, Section 8, paragraph 15, and Article IV, Section 4, of the Constitution of the United States. But whereas the federal powers granted by these provisions of our constitution have rarely been invoked, in Brazil they have been invoked in virtually every year since the establishment of the federal régime, and in some years on more than one occasion.

The difference in the practice in this regard in the two countries has been most marked in connection with the guaranty to the states of a “republican form of government.” Intervention based on this guaranty never occurred in the United States of America in the hundred years that had elapsed between the inauguration of the American federal system and the establishment of the Brazilian federal system. Hardly had the Brazilian federal constitution gone into effect, however, when this power was there put to actual use. This fundamental difference in constitutional practice with reference to nearly identical provisions in the constitution is to be explained, of course, by the conditions under which the Brazilian provinces became autonomous states, and the central government changed from an hereditary monarch to an elected president. The difficulties confronting the new régime in Brazil which modified this and other phases of the application of the federal principle in Brazil cannot be considered at length in this rapid survey. But the obvious strengthening of the federal government, politically speaking, from the frequent use of the power of intervention, justifiable and even necessary as such

intervention may have been on many occasions, must not be overlooked in any estimate of the actual distribution of powers between the nation and the states.

Much the same considerations apply to the other federal power mentioned, viz., the power to declare a state of siege. Although the "state of siege" is a governmental institution of continental Europe, unknown to England or the United States, and although the device if not the name was employed under the Brazilian imperial constitution of 1824, it was believed by some at least of the framers of the Brazilian federal republican constitution that the incorporation of this power was merely a reproduction of a provision existing in the constitution of the United States of America. There are several references to this power in the Brazilian constitution, but its essence is contained in Article 80 that follows immediately upon the bill of rights: "Any part of the territory of the Union may be declared in a state of siege, the constitutional guaranties being there suspended for a definite time, when the security of the Republic requires it, in case of foreign aggression or internal commotion." The provision of the United States constitution of which this is supposed to be a mere paraphrase says: "The privilege of the writ of habeas corpus shall not be suspended unless when in cases of rebellion or invasion the public safety may require it."

Whatever the theory as to the relation between the Brazilian state of siege and the suspension of the writ of habeas corpus in the United States may be, in practice they are quite distinct. The suspension of the writ of habeas corpus has been in practice an extreme measure to meet serious emergencies in the United

States, the declaration of the state of siege in Brazil has been resorted to on frequent occasions. Though its invocation in many instances has been salutary and even necessary, it is a political device which, like the power of intervention, lends itself readily to abuse. Especially as both these powers are in practice if not in strict theory exercised chiefly by the president of Brazil with the acquiescence of the national representative body, they can easily be made the instruments of political subordination of the states to the dominant faction in national politics. While there has not been evidenced the same tendency to excessive exercise of these powers in Brazil that has been manifested in the neighboring federation of the Argentine, in the constitution and political practice of which they had already secured a firm foothold when the Brazilian constitution adopted them, it is evident that they do give the federal government an actual superiority which in the United States of America has remained a purely theoretical or potential one.

There are certain other powers, of perhaps secondary importance, which were not granted to the federal government in express terms in the constitution of the United States, but were implied by judicial interpretation, and which were expressly included in the enumeration of federal powers in the Brazilian fundamental law. Among such powers may be enumerated the power to create national banks of emission, the power to own and operate railways and telegraphs, the power to determine the boundaries of the states, the power to grant subsidies to needy states, and the power to regulate the conditions and procedure of elections for federal offices.

Aside from these exclusive powers of the federal

government, there are certain other powers enumerated which are concurrent with the powers of the states on the same matters. Such are the power to encourage the development of letters, arts, and sciences as well as immigration, agriculture, industry, and commerce; the power to create institutions of secondary and higher instruction, and to exercise any financial powers of taxation that have not been assigned exclusively to the states.

Of basic importance in the delimitation of the spheres of the two classes of governments is the extent of the judicial power of the federal government. Here the Brazilian constitution not merely repeated the provisions of the judiciary article in the constitution of the United States, but also the more detailed provisions of our first judiciary act of 1789. In any cases of controversies between the states, in cases of controversies between the states and Union, and in all cases where the validity or application of the federal constitution, federal laws, or federal treaties were questioned or denied, the federal courts either originally or finally would settle the question. Similarly if state laws or governmental acts are in question and it is claimed that they are in violation of the federal constitution or laws, the decision of the state courts upholding the state acts is subject to review by the federal courts. In other words, the important power to settle finally the real extent of the state powers under the constitution, rests in Brazil, as in all true federations, with the national judiciary.

The most important power of all lodged in the national government in Brazil is the power of changing the constitution itself. In the United States of America the federal constitution, which is the funda-

mental law that fixes the relation between the national government and the states, cannot be amended without the approval of three-fourths of the states themselves, as expressed by their legislatures or by conventions called for that purpose. In the German Empire 14 votes in the federal council (Bundesrath) could defeat a proposed amendment. In the Swiss Federation no amendments to the federal constitution can be adopted without ratification by the people as a whole, and a majority vote in a majority of the cantons or Swiss states. In all these cases, therefore, the states are protected against a diminution of their powers by the federal government alone in the process of amending the constitution. But in Brazil the federal government, that is, the national congress, has the power to amend the constitution without ratification by the states in any form. This practically leaves the states at the mercy of the national government in the matter of their constitutional sphere of action, and in the opinion of many students of government destroys an essential characteristic of a federation. In practice, however, this power of the federal government has never been used, in fact not a single amendment has been added to the constitution of Brazil in the more than thirty years since it went into operation.

In the light of these extensive powers of the federal government in Brazil the question naturally arises, what powers are left to the states? Theoretically, as we have seen, all powers are left to the states which are not denied them expressly or by implication in the federal constitution. Practically, not only are all the exclusive powers of the federal government considered above denied to the states, but there are in

addition other express and implied limitations on their powers. On the other hand certain powers are expressly granted to the states for greater certainty, in spite of the fact that they would belong to the states anyway under the general theory of constitutional distribution. The most important of the powers left to the states, with some of their chief limitations, may here be mentioned for the sake of a clearer picture.

In the first place, each of the twenty states is guaranteed the right to frame its own constitution, that is to create and organize its own government. But this government must not only be republican in form, whatever that may mean as applied in practice under the power of federal intervention considered above, but also it must in its organization "respect the constitutional principles of the Union." Just what is meant by this limitation is a question on which Brazilian jurists do not agree. In practice it has not meant anything, for state constitutions or their amendments are not submitted to the approval of the national congress, nor are cases commonly brought to the federal supreme court in a way to test the violation of these "constitutional principles of the Union" by state constitutional provisions. Probably any instance which the court would consider as violative of this limitation would be brought under the more specific requirement of a "republican form of government." But in any case there are instances of provisions in state constitutions clearly contrary to explicit and definite provisions of the federal constitution, which makes it unlikely that the courts would be very strict in the application of this limitation.

Another limitation on the power of the states to

frame their own constitutions is a requirement of the federal instrument that in their organization they shall assure the autonomy of the municipalities in everything respecting their peculiar interests. This looks like a federal guaranty of municipal home rule, but in practice it has, so far at least, meant almost no federal interference to make this guaranty effective. The question has been raised in the federal courts whether under this limitation the states could put a prefect appointed by the state executive at the head of the municipalities, as is done in the departments in France, and the courts have held that such an appointed officer infringes on the autonomy of the municipalities as guaranteed by the federal constitution. But such prefects continue none the less in various of the states.

Aside from framing their own constitutions and organizing their own governments, the states have a restricted but rather important legislative power. It is obvious that with the whole domain of civil, criminal, and commercial law covered by federal codes, the legislative field of the states is very limited, when compared with those of the American states. Nevertheless, the whole field of what is called administrative law is left to the states. This embraces a good part of what is commonly known as the police power. Rules and regulations for the preservation of public safety and health are within the domain of state action. It is not clearly settled just how far this power of administrative legislation can go without infringing on the fields of legislation definitely assigned to the federal congress, but it leaves a considerable field of action. Labor legislation would seem to fall into this class. The regulation of pro-

cedure in the state courts is another matter that rests with the states.

On the positive side of government, as distinguished from the negative or regulatory power, the states have a wide field of action; education, highways, stimulation of agriculture, industry, immigration and commerce. In the realm of taxation the states have exclusive power to impose taxes on the export of goods of their own manufacture, taxes on real property, taxes on the transfer of property, and taxes on industries and professions, aside from stamp taxes on documents deriving their legal validity from the acts of the state governments, and the revenues of their telegraphs and railroads. In addition they have concurrent powers of taxation over all subjects not exclusively assigned to the federal government, such as import duties, shipping dues, taxes on federal documents and revenues from federal posts, telegraphs and railroads. License taxes of all kinds and income taxes are, therefore, available to the states.

The right to tax exports, specifically denied to the American states as well as to the United States government, was granted to the states in Brazil in the face of considerable opposition, for the unfortunate character of these taxes was clearly recognized, and it was proposed to limit this right to a period of five or ten years as a temporary measure. With the right to tax imports assigned exclusively to the national government, it was felt that the states would be financially crippled if they were not permitted to impose export taxes, since land taxes or general property taxes had not been employed up to that time and the yield from the other taxes was wholly inadequate to meet the needs of state government expenses. For

many years even in the most advanced states, and even today in nearly all the less developed states, export taxes yield the bulk of the state revenues. But there is a growing realization of the evil effects of these export taxes and a growing sentiment in favor of their abolition.

From the point of view of functions to be performed and of legal sources of revenue for performing them, the states are therefore possessed of very fundamental and considerable powers. But owing to the economic backwardness of a majority of the twenty states, their sparse population, the difficulties of transportation and communications, etc., only the most rudimentary of these functions can be performed at all, and even those in many cases can be only partially performed. The undertaking of expensive works is in many cases quite beyond their means. It is for this reason that the federal government, possessed of far larger actual and available resources, not only occupies almost the entire field of concurrent powers, such as the encouragement of immigration and agriculture, industry and commerce, the creation of institutions of higher and secondary education, and the stimulation of the development of letters, arts, and sciences, but even enters upon the fields that were originally intended to be cared for by the states, such as public health, primary education, highways, etc. This is being done, as in the United States, by the grant of federal aid, which carries with it, of course, federal supervision and direction. So that in actual practice, in many of the states, the sphere of activity of the states is restricted considerably below that permitted or even indicated by the constitution.

This is not true, however, of the economically more

developed states, such as Minas Geraes, São Paulo, and Rio Grande do Sul, which are very jealous of their constitutional prerogatives and even refuse financial aid from the federal government which would involve yielding to that government a control of the activities so aided. A more detailed account of the governmental activities of the individual states will be given in the later chapters of this work.

To return now to the constitutional position of the states in the Brazilian federal union, there is one other consideration that must be mentioned, and that is the participation of the states in the organization of the federal government. As in the United States of America, the lower house of the national congress represents the populations of the various states roughly according to their numbers. That is, the states are election districts for national deputies according to their populations, much the same as the election districts that are found in a unitary state. But to safeguard every state in the possession of some representation in the lower chamber, the Brazilian constitution insists that at least four deputies be chosen from each state, no matter what its population, whereas in the United States the minimum representation in the lower house was fixed at one.

It is in the senate or upper house, however, that the federal character of the organization of the national congress is emphasized. As in the United States, all states are given the same number of federal senators, three in Brazil instead of two as in the United States, and, moreover, the constitution stipulates that no proposals to abolish the equal representation of the states in the senate shall even be considered as proper subjects for deliberation by the congress.

Finally, there must be mentioned among the peculiar characteristics of the federal features of the Brazilian system, the position of the Federal District in which is located the national capital. Totally unlike the position occupied by the District of Columbia in the United States, the Federal District in Brazil is in most respects on an equal footing with the states. It is represented in the lower chamber by a number of deputies proportioned to its population and in the upper chamber by three senators on an equality with the twenty states that make up the Union. It has, moreover, its own representative body, though its executive is appointed by the national president and its fundamental law is enacted by the national congress.

The reason for this exceptional status of the federal district in Brazil is to be found principally in the fact that at the time of the creation of the Federal Union in 1889 the municipality of Rio de Janeiro was already an area distinct from any other subdivision as the seat of the imperial court. Moreover, the constitution looked to the ultimate removal of the national capital to the interior plateau, for reasons of military safety and economic and political development, and stipulated that when that occurred the present federal district should take its place as a full-fledged member of the federation in all respects co-equal with the other twenty states.

Citizenship, Political Rights and Individual Guaranties

As in the United States of America, citizenship is national. There is no such thing in Brazil as state citizenship. All persons born in Brazil are Brazilian citizens, unless their fathers were foreigners in the

service of their own country in Brazil at the time of their birth. Moreover, all children of Brazilian fathers are Brazilian citizens, irrespective of the place of their birth, if they become residents in Brazil. The same is true of illegitimate children born abroad of Brazilian mothers. In the case of persons born abroad of Brazilian fathers active at the time in the service of their country, they are Brazilian citizens so long as they do not establish a residence abroad.

In addition to these natural-born citizens, there are naturalized citizens. This naturalization is regulated as in the United States by federal law, but, in addition to the formal process of application for citizenship to the federal authorities, naturalization may by constitutional stipulation occur in other ways. Not only does a foreign woman upon marrying a Brazilian citizen become a citizen also, but male citizens of other countries who own realty in Brazil and are married to Brazilian women or have Brazilian children, thereby become naturalized Brazilian citizens as long as they reside in Brazil, unless they manifest their intention to retain their original nationality.

There is no constitutional or legal distinction recognized between natural-born and naturalized Brazilian citizens except in two cases. Naturalized citizens may not be elected to the presidency or vice-presidency of the country, and to be eligible for election to the national chamber of deputies or senate they must be citizens of four and six years' standing, respectively.

So far as political rights are concerned, that is, the right to vote and the right to hold office, these also are determined by the constitution itself, for state elections as well as for national elections. Herein the Brazilian constitution consciously departed from the

American model in which the qualifications for voting not only in state elections but even for members of Congress were originally left to the states to determine. Even now, in spite of the limitations of later amendments, the states in the American Union can admit aliens to vote for their representatives in the national congress, and the suffrage qualifications are not uniform.

But in Brazil the constitution is explicit on this point. It says, "Voters are the citizens of more than 21 years of age who are registered in conformity with the laws." It then goes on to disqualify certain classes of persons from being so registered as voters for either federal or state elections, viz., beggars, illiterates, privates in the army, and members of religious orders whose vows involve the renunciation of individual liberty. And, in order to extend these disqualifications to holding elective offices, the constitution goes on to say that citizens not eligible for registration are ineligible for election. The object of these provisions is quite clearly, therefore, to make the suffrage qualifications uniform throughout the country, both for state and national elections, and to exclude from elective offices all citizens who are not voters. It does permit, however, that the states may impose additional qualifications for holding elective offices in the states, just as the constitution itself and the federal election laws impose additional qualifications beyond registration as a voter for federal elective offices.

The most important of the disqualifications for registration as voters and therefore for the holding of elective offices is, of course, the one excluding illiterates. If strictly applied this would eliminate two-

thirds or even three-fourths of the adult citizens. But even more important is a disqualification that is not even mentioned but is clearly understood, and that is the disqualification of sex. When the constitution speaks of "citizens of more than 21 years of age" it means male citizens, for proposals to extend the franchise to women were made in the convention that adopted the constitution of 1891 and were expressly rejected.

In contrast to political rights, which are restricted to Brazilian citizens, are the civil rights of liberty, personal security, and property. These rights by the express terms of the constitution are guaranteed to foreigners resident in Brazil on the same basis as to Brazilians. They comprise all the individual guaranties which have been inserted into most of the written constitutions of the world since first included in the early American state constitutions after 1776. Equality before the law, religious freedom, freedom of instruction, the right of assembly, the right of petition, the inviolability of the domicile and of correspondence, freedom of the press and of speech, protection to the person accused of crime, the right to the writ of habeas corpus, liberty of occupation and locomotion, trial by jury, and security of private property are all protected by express provisions of the Brazilian constitution. In addition to these familiar guaranties there are some not found in our American constitutions, such as the abolition of the death penalty and the guaranty of patents, copyrights and trademarks. It would be difficult to find a more extensive and detailed enumeration of civil rights guaranteed by a constitution than is encountered in Brazil, nor is there anywhere a more explicit inclusion of foreigners

as well as citizens within the protection of these guaranties.

But it must not be overlooked that this broad and detailed guaranty of individual rights is profoundly modified in Brazil by the power expressly granted to the federal government to suspend some of the most vital of them by the declaration of the "state of siege" examined above. Just how far the national government may go in suspending these constitutional guaranties during the continuance of the state of siege is a question not settled either in theory or in practice. But it is certain that personal liberty can be destroyed by the detention of individuals in a place not intended for ordinary criminals, without any of the safeguards established for those accused of crime being observed, or by their removal to another part of the country. Moreover, liberty of the press can be destroyed by the establishment of a censorship over all publications. These two measures are in fact sufficient to meet the requirements and they were put into effect in almost every one of the many instances of the declaration of a state of siege.

If individual rights and guaranties are more or less at the mercy of the national government in times of disturbance justifying a "state of siege," they are on the other hand protected effectually against violation by the state governments. In the United States of America, as is well known, the constitution did not protect individual rights in a broad way against state action, and the first ten amendments were limited in their application to the action of the federal government. It was not until the Fourteenth Amendment was adopted in 1868 with its "due process of law" provision that the federal constitution could be effec-

tively invoked against oppressive state action. The bill of rights in the Brazilian constitution being considered as among the "constitutional principles of the Union," which the states must observe in their constitutions and laws, these individual guaranties can be invoked in the federal courts by individuals alleging their violation by the action of state authorities.

The Organization of the Federal Government

In the organization of the federal government established by the constitution of 1891 the American principle of the separation of powers was given express recognition. In the words of the constitution: "The organs of the national sovereignty are the legislative, the executive, and the judicial power, harmonious with and independent of each other." No room there for the parliamentary system!

THE LEGISLATIVE POWER: The legislative power is constituted on the bicameral principle, the national congress consisting of the chamber of deputies and the senate. The chamber of deputies consists of representatives elected by direct popular vote, on the principle of minority representation. Each of the twenty states, as well as the federal district of Rio de Janeiro, is entitled to at least four deputies, the ratio of representation established by the constitution being not more than one for every 70,000 inhabitants. The number of deputies from each state is supposed to be reapportioned after every decennial census. But as a matter of fact there was no change made from the original apportionment in 1892, which provided for a total of 212 members. The census of 1920, the first really complete census of Brazil ever taken, showed a population of 30,635,605, so that the present ratio

of representation is approximately one deputy for every 144,500 inhabitants.

The position of the twenty-one units that make up the federal union, ranked according to their representation in the chamber of deputies, is shown by the following table, which gives also their population as established by the federal census of 1920.

<i>State</i>	<i>Deputies</i>	<i>Pop. 1920</i>
Minas Geraes	37	5,888,174
São Paulo	22	4,592,188
Bahia	22	3,334,465
Pernambuco	17	2,154,835
Rio de Janeiro.....	17	1,559,371
Rio Grande do Sul.....	16	2,182,713
Ceará	10	1,319,228
Federal District	10	1,157,873
Pará	7	983,507
Maranhão	7	874,337
Alagoas	6	978,748
Parahyba	5	961,106
Paraná	4	685,711
Santa Catharina	4	668,743
Piauhý	4	609,003
Rio Grande do Norte.....	4	537,135
Goyaz	4	511,919
Sergipe	4	477,064
Espirito Santo	4	457,328
Amazonas	4	363,166
Matto Grosso	4	246,612
Total	212	30,635,605

From the above table it is apparent that there are serious inequalities in the representation of the states in the chamber of deputies. Immediately after the compilation of the census returns of 1920, therefore, the question of reapportionment came up in the national congress. But none of the states was willing to accept a reduction in the absolute number of deputies to which they have so far been entitled. The only alternative, therefore, was to increase the size of the chamber, which could be doubled without reducing

the number of inhabitants for each deputy below the constitutional minimum of 70,000. But that alternative, aside from the general objections to increasing the number of deputies, had to overcome the specific opposition of the states whose relative strength in the chamber of deputies would be decreased by any reapportionment. When the congress adjourned in 1923 no change had yet been effected in this direction, therefore.

The only qualifications for election to the chamber of deputies established by the constitution are the qualifications for being registered as a voter and more than four years of Brazilian citizenship, but the constitution permits disqualifications to be established by law under the designation of incompatibility, and the constitution itself establishes several such disqualifications, especially as regards the simultaneous holding of other offices. The term of deputies is three years, all deputies being elected simultaneously on the same day and going out of office together. Reëlections are permitted and are quite common, some deputies having been repeatedly returned since the establishment of the first republican congress. The great majority of deputies are professional men, possessing higher degrees in law, medicine, or engineering, many of them being journalists and writers as well. As regards education, facility in writing, oratory, and debate, and prior political experience, the members of the Brazilian chamber of deputies compare favorably with the members of the popular branch of any national legislature in the world.

The senate consists of 63 members, three senators from each state and from the federal district. In providing for equal representation of the states in the

senate, the Brazilian constitution followed the American example rather than that of the German federation. But in stipulating three instead of two senators from each state, the example of the neighboring federation of the Argentine was prepotent. Partial renewal of the membership of the senate was likewise made a feature of the Brazilian system, one-third of the senators being elected every three years, at the same time as the election of the whole membership of the chamber of deputies, for a term of nine years.

The qualifications for election to the senate are the same as those for the chamber of deputies except that six years of Brazilian citizenship are required instead of four, and 35 years of age instead of merely 21. Similar incompatibilities exist for combining other offices with those of senator, as in the case of deputies. But it is to be noted that commissions in the army and navy are excepted from this incompatibility when in the regular course of promotion, and even extraordinary commissions or commands, as well as diplomatic appointments, may be accepted by members of the congress with the consent of the respective chambers. Hence it is not uncommon to find military and naval officers sitting as members of the congress without resigning their posts or dropping out of the regular line of promotion.

The post of senator, owing to the smaller number of positions as compared with the deputies and to the longer term of office, is one of greater dignity and is much sought after. Even without the greater age qualification, therefore, the age of the senators would be greater than that of the deputies. About a dozen members of the senate in 1922 were members of the constitutional convention of 1890 and had served con-

tinuously in the national legislature in the intervening thirty years and more. Their places are being taken by men who have had long political careers either in the state governments or in the lower house of the national congress, or both. As in the United States of America, successful state executives are very likely to aspire to a seat in the national senate.

Both deputies and senators are paid a per diem and an allowance for expenses. This is fixed by each congress for the succeeding one and amounted in 1922 to a hundred milreis a day (about \$25 at normal exchange rates) and a thousand milreis for expenses. As the session of the congress which opens on May 3 of each year and is supposed to continue for four months, in practice regularly lasts until the end of the year, or eight months, the annual remuneration for members of the national congress amounts to the equivalent of about \$6,000, enough to support the members in considerable ease in Rio de Janeiro during the legislative season.

The members of the national congress enjoy the usual immunities of legislators the world over, freedom from arrest, freedom from liability for statements made in the exercise of their functions, etc. In theory the chamber of deputies enjoys a certain legislative superiority over the senate in that finance measures, measures relating to the fixing of the land and sea forces, all measures submitted by the executive which include the budget and most other important measures that have any chance of enactment, and the bringing of impeachment proceedings against the president and the ministers, must originate in the chamber of deputies. In practice this apparent superiority of the popular chamber has not established itself. The Bra-

zilian senate, on the other hand, does not enjoy the special powers accorded to the senate of the United States with reference to the approval of treaties, which in Brazil must be approved by both houses of the Congress, though it does approve many important presidential appointments and sits as a high court to try the impeachment charges against president and ministers.

The two chambers enjoy the power of passing on the qualifications and elections of their members, of electing their own officers, and of framing their rules of procedure. The constitution says that the legislative power is exercised by the national congress with the approval of the president of the republic. In the determination of state boundaries, in the extension and adjournment of the sessions, and in the amendment of the constitution, as also in the acts connected with impeachment proceedings, the president's approval is not necessary. Otherwise all bills that have passed both chambers must be signed by the president before they become effective. There is, however, the familiar provision for repassing a bill over the president's veto by a two-thirds vote in both chambers. A curious feature of the legislative procedure is the provision that amendments offered in the second chamber to which a bill comes may, if rejected by the first chamber, be readopted by a two-thirds vote and then stand as part of the bill unless the first chamber can muster a similar two-thirds majority against their inclusion.

In the legislative process the executive board of each chamber, known as the *mesa* and consisting of the president and four secretaries of the chamber, plays a very important rôle in the actual conduct of business.

Standing committees and special committees likewise are important organs of legislation. Most important bills are introduced by the executive and their fate is settled as a rule in the standing committees before which the cabinet ministers may appear in person to defend them. Generally speaking, executive measures are pretty sure to be enacted, though perhaps in modified form, and contrariwise individual bills opposed by the government have very little chance of being enacted, save in extraordinary situations.

THE EXECUTIVE POWER: The executive power is exercised by the president of the republic as elective chief of the nation. The Brazilian federation adopted the presidential form of government on the model of the United States, not merely because the parliamentary or cabinet form was believed to be unsuited to a federal form of organization, but because Brazil had had an unsatisfactory experience with the cabinet form under the empire. In general, therefore, the American model of a strong and independent executive was followed with some important modifications.

In the first place, the president of Brazil is chosen by direct popular election, instead of by the indirect process of presidential electors established by the United States Constitution. The American plan had ardent supporters in the constitutional convention of 1890, but there were quite as many who believed that the American experience had proven undesirable in practice, and after a bitter fight the supporters of direct election won the day.

Any native Brazilian 35 years of age and in the enjoyment of his political rights is eligible for election, provided he has not served in the term immediately preceding, or as vice-president has exercised

the presidency during the last year of the term. The term of office is four years, the election occurring on the first day of March of the year in which the term ends on November 15. An absolute majority of the popular votes cast is required for election, failing which the congress chooses between the two candidates receiving the highest vote. In every one of the nine popular elections of president from 1894 to 1922, inclusive, the president was chosen by an overwhelming majority of the popular vote. Under the constitution, if a vacancy occurs in the presidency during the first two years of a term there must be another popular election for president to fill out the term, a condition that occurred in 1919. In the presidential election of 1922, the most bitterly contested of any election held up to that time, there were over 800,000 voters who came to the polls, out of a total of a little over 1,300,000 registered. The vote as finally canvassed and announced by the congress showed 466,877 legal votes for the successful candidate, Dr. Arthur Bernardes, and 317,714 for the defeated candidate, Dr. Nilo Peçanha.

There has been only one case of the reëlection of a president after the lapse of the four-year period required by the constitution, that of Dr. Rodriguez Alves elected in 1902 and reëlected in 1918. Of the eight men elected since 1894, three had been presidents of the state of São Paulo and three had been presidents of Minas Geraes. Of the other two, one was a marshal in the army, and the other a former federal senator and representative of Brazil at the Versailles Peace Conference at the time of his election. Almost without exception the presidents of Brazil have been men of broad education and culture, with large political ex-

perience and proven executive capacity. It is significant that they have been chosen chiefly from the executives of the two great states of São Paulo and Minas Geraes. Not only are those posts the two most important public offices in Brazil next to the national presidency itself, but the political power of those two states, which in 1922 comprised 509,000 out of 1,305,000 registered voters, insures the nomination of any candidate on whom they can agree, and nomination is virtually equivalent to election. Ostensibly the selection of the next candidate of the Republican Party, the only party that exists in Brazil, is by a national convention. Actually the convention is little more than a caucus of the national congress which ratifies the nomination of the candidate on whom the party leaders, which means in general the state executives, have agreed.

When the selection of the next candidate has been formally made, the only way in which an opposition candidate can make a campaign is for the dissatisfied minority in the caucus to put him into nomination. There being no regularly organized national party other than the Republican Party, such an opposition candidate naturally has little or no chance of success, since he has no strong organization back of him and relies only on the support of the disgruntled elements that make up the minority. In actual fact, therefore, up to the present the president of Brazil has been selected by the political chiefs of the country, and the voters have done no more than express their approval of that selection at the polls. In the United States, as is well known, the political chiefs of each of the two great parties select the candidate, and the voter has his choice between the two men so selected.

In his constitutional position the president of Brazil is the equal in power, and in certain respects the superior in power, to his prototype, the president of the United States. In addition to the power of submitting messages and general recommendations, the Brazilian president may introduce specific legislative measures into the congress, and he enjoys the veto power, as has already been noted. Moreover, in accordance with the French concept of the executive power, he has a large measure of regulatory power, which in effect means a broad ordinance power. Many kinds of measures which in the United States can be enacted only by the congress and cannot even be delegated by it to the president fall within this power of supplementary ordinance. The two fundamental powers of federal intervention and declaration of a state of siege, though subject to congressional control, are in actual practice largely exercised by the president. His powers of appointment and removal are broader even than those of the president of the United States, for all federal offices are filled by him unless expressly otherwise stated. His salary is fixed by congress and amounts to 120,000 milreis a year, with 265,000 milreis for expenses of his residence, the equivalent of about \$100,000 in all.

Not only is the Brazilian president constitutionally stronger than the president of the United States, but politically he is even more so. This is due in part, no doubt, to the traditions of the strong executive under the empire, but even more to the political situation as regards parties. There being only the one political party, the heir of the Historical Republican Party of the last years of the empire, the president as recognized chief of that organization is not merely supreme

within his party but is not hampered by the opposition of any regular party ready to take control if he and his party are discredited. Hence it is rare that the members of congress, themselves elected generally by the support of the state executive or political boss who helped select the president, find it to their political advantage to oppose the administration, or government, as it is called in Brazil. There is always some opposition in the congress, of course, sometimes very bitter and embarrassing opposition, coming from the insurgent groups that led the fight against the regular candidate. But it is rarely strong enough or even united enough to interfere seriously with the dominance of the executive.

The vice-president is chosen at the same time and in the same manner as the president. The chief peculiarity to be noted with regard to this office in Brazil, aside from the fact that as in the case of the presidency relatives by blood or marriage within the first or second degrees of the incumbent in office at the time of the election or within six months before are ineligible, is the provision that if a vacancy occurs in the presidency during the first two years of the term the vice-president succeeds only temporarily to the presidency until such time as a new election can be held. If for any reason the vice-president is unable to succeed to the office, the order of succession stipulated by the constitution is the vice-president of the senate, the president of the chamber of deputies, and the president of the federal supreme court. This case has not yet presented itself.

The ministers of state, or cabinet officers as we should call them, are appointed and removed by the president with absolute discretion. The number is

not fixed by the constitution, as in the Argentine, but is determined by ordinary legislation. At present there are seven of these ministers in charge of the following departments: Finance; justice and the interior; transportation and public works; foreign relations; navy; war; agriculture, industry and commerce. There is, however, the usual pressure to increase the number of departments, due partly to increasing pressure of business and partly to a desire for more political posts. The ministers receive a moderate salary fixed by law, 42,000 milreis or about the equivalent of \$10,500 a year. But the position is one of importance and dignity and attracts men of the highest ability as well as of extensive political and administrative experience. For various reasons the administrative duties of these posts are more important than those of the department heads in the United States, who are selected rather for political than for technical qualifications. The ministers of war and of the navy are almost always active service men.

THE JUDICIAL POWER: The judicial power is exercised by a federal supreme court and district courts in each of the twenty-one units in the federation. The supreme court consists of 15 judges appointed for life by the president of the republic with ratification by the senate, from among citizens of well-known learning and reputation, qualified for membership in the senate. The sectional or district judges are likewise appointed for life by the president from triple nominations by the supreme court itself. In addition to the regular judges there are alternates and substitutes as well. The prosecutor's or attorney-general's department is headed by a member of the federal supreme court designated for the post by the president.

In connection with every district or sectional federal court there is a district attorney as well.

The jurisdiction of the federal courts in Brazil is closely modeled on that of the United States courts, but there is an even greater freedom of appeal or removal from the state courts to the federal courts. Almost any case can be so framed as to fall either within the original jurisdiction of the federal courts or within their power of review. The salary allowed the judges is not large, 39,000 milreis, or a little less than \$10,000 a year for supreme court judges and about half of that for district or sectional judges, but the life tenure and the importance of the posts make them attractive to even the most successful of private attorneys, and the roster of the supreme court can show many of the most eminent jurists of the country. Some of them have also been eminent politicians.

The power of the federal supreme court to pass upon the validity of state laws and constitutions in the light of the federal constitution was recognized as an essential feature of the federal scheme of organization. But the power of judicial review of federal laws, that is, the power to pass upon the validity of acts of the congress and the president in relation to the constitution, was likewise granted to the federal courts in imitation of the system of the United States. As is well known, this is distinctively an American contribution to political practice and is unknown on the continent of Europe. In Brazil it was not merely written into the constitution, but has actually been put into effect in a considerable number of cases. The principles that guide the supreme court in exercising this important power are adopted almost in toto from the American practice.

Finances and Functions of the Federal Government

A general conception of the activities of the Brazilian national government could only be obtained from a study of the financial reports accompanying the annual budget. Various of these activities will be considered in other connections in later chapters of this work, but space does not permit of going into any considerable detail here. For the sake of giving a snapshot of the activities of the national government at the end of the first century of independence a brief summary of the expenditures by departments as proposed in the budget of 1922 will have to suffice. But before even such a brief view will mean anything it is necessary to say a word about Brazilian money.

Theoretically, Brazil is on a gold standard, the unit being the milreis, a thousand reis, and is written with the dollar sign after the unit and before the decimal figures, in this fashion, 1\$000. The value of this theoretical unit is around \$0.56 in U. S. Gold, but no gold pieces are actually coined. The paper milreis was supposed to be redeemable at \$0.32 in U. S. gold or 1s. 4d. sterling. But the practice of resorting to continual issues of unsecured and inconvertible notes caused the exchange value of the paper milreis to fall in 1922 to a third of its normal value. Owing to the fact that some of the government expenditures, such as that on the foreign debt, foreign purchase of government supplies, salaries of diplomatic representatives abroad, etc., have to be paid in gold, the budget expenditures are given under two headings, gold milreis and paper milreis, respectively. These statements are then further complicated by the fact that the exchange value of the paper milreis is subject to such fluctuations

that its equivalent in foreign money cannot well be given, and if given would not give a true picture of the importance of the expenditures so indicated. It seems best, therefore, to adopt arbitrarily the conversion value of the paper milreis at \$0.32, remembering, however, that in the year 1922 its exchange value sank to a third of that amount. One other peculiarity in the notation used in Brazil must be mentioned. For larger sums of money the computing unit is known as the *conto de reis*, that is, a million reis, or a thousand milreis. It is written in this form, 1:000\$000, and represents at the normal exchange value of the paper milreis the sum of \$320 in American gold.

The governmental expenditures as estimated in the budget for the year 1922 amounted to some 86,000,000 gold milreis and 831,000,000 paper milreis, or, in terms of American gold with the paper milreis at 32 cents, around \$314,000,000. Of this total amount the Ministry of Finance, which tends to the service of the foreign debt, required over 60,000,000 gold milreis and nearly 200,000,000 paper milreis, or almost \$100,000,000. Almost a third of the national expenditures, therefore, went to the service of the national debt, which in 1922 amounted to around a billion dollars, foreign and internal.

Of the remaining expenditures the major portion went to the Ministry of Transportation and Public Works, which has charge of the national railways, the postal and telegraph systems, port works, irrigation works, etc., with a total estimated expenditure of about \$94,000,000.

The Ministry of War ranked third in estimated expenditures with approximately \$42,000,000. Brazil has a compulsory military service law, the peace time

strength of the army being about 54,000. Much less expensive is the Ministry of Marine with an estimated expenditure of some \$29,000,000. The Brazilian navy consists of two dreadnoughts, two battleships, three protected cruisers, ten destroyers, three submarines, and a number of minor craft and river boats. The personnel of the navy amounts to some 8,000 men besides officers. At the end of 1922 a naval mission from the United States proceeded to Brazil for the reorganization of the navy in all its branches.

The Ministry of Justice and Internal Affairs, with control over the administration of the federal territory of Acre and the Federal District, as well as the educational activities of the federal government, had estimated expenditures of some \$32,000,000. In this field of activity, as well as in the work of the Ministry of Agriculture, Industry, and Commerce, with its estimated expenditures of \$16,000,000, the federal government is steadily extending its activities and expenditures in fields which have been considered as primarily matters of state concern. Of these more will be said in another connection.

To meet these expenditures the federal government relies on four principal sources of revenue, viz., import duties, consumption taxes, revenues from government undertakings, and stamp taxes. Of these the most important by far are the customs duties, not only because of the large share of the total revenues that come from that source, but principally because the customs duties are about the only form of taxation from which the government secures the necessary gold to meet the obligations that have to be paid in gold. Over half of the customs duties must be paid in gold, whereas all the other forms of taxation are paid in

paper milreis. As a matter of fact, while the expenditures of the government have always equaled and generally exceeded the budgetary estimates, the revenues have usually fallen below the estimates, creating recurring deficits that had to be met by foreign or internal loans, or by the less obvious borrowing practiced under the camouflage of issuing inconvertible paper currency.

The State Governments

It has already been pointed out that the twenty states that make up the Brazilian federation are left free to frame their own constitutions and laws, subject to the limitations imposed by the federal constitution. As regards the form of government these limitations specify that it must be republican, must respect the constitutional principles of the Union, and must safeguard the autonomy of the municipalities in all that respects their peculiar interests. The exact significance of these rather vague terms has not as yet been determined. But in practice the Brazilian states have all organized pretty much on the same general model, though there are more pronounced variations than are to be found in the governments of the states of the American Union. The suffrage, as has been seen, is pretty definitely fixed by the national constitution for state as well as for federal elections. All the states have popularly elected executives, known as "governors" in nine of the states and as "presidents" in the eleven others. In all but one of the states the executives are now ineligible for reëlection. But everywhere the governors are very powerful factors, both as regards their constitutional position and also by reason of their political leadership. They are

the real political bosses of the state, controlling not only the state legislatures and the selection of their own successors, but also the representatives of the state in the national congress. Owing to the restricted suffrage due to the literacy requirement and to the social and economic preëminence of the families from which the governors generally come, the political condition of some of the Brazilian states is best reflected by the name given them by Brazilian critics themselves, viz., "feudal states." In the economically and socially more advanced states this designation is no longer accurate, but yet one of the most striking features of the state government in Brazil remains that of the predominant rôle of the executive.

The legislatures, elected by direct suffrage on the principles of minority representation in all the states, have in general followed the unicameral type, in contrast with the universal bicameral system in the United States. However, although only seven out of twenty states have bicameral legislatures in Brazil, these seven include the most important states and comprise together two-thirds of the population of the country. By contrast with the strong executive, the state legislatures fall into relative unimportance, though now and then in a serious conflict with the executive the legislature may emerge victorious.

In the organization of the judiciary one principle that has been universally applied, and which indeed has been held to constitute one of the "constitutional principles of the Union," is in marked contrast also to the North American system. The judges of the regular courts are in all cases appointed for life, only the justices of the peace and the judges of first instance being in any case elected.

The activities of the state governments will be considered in connection with the examination of the individual states later on.

Local government is administered by the *municipios* or municipalities, very similar in all the states. In spite of the provision in the federal constitution which guarantees municipal autonomy, these *municipios* are pretty much under the political control of the state administration, on the French model. The *municipio* itself is like the French commune, not like our American municipalities. It is a large area including rural as well as urban territory and indeed, except in the case of the *ciudades* or cities, is preponderatingly rural, like our extensive western counties in the United States. There is in every such municipality an elective council and a prefect, the latter appointed in some states by the governor, in spite of the view of the federal supreme court that an appointive prefect violates the concept of municipal autonomy. Generally speaking, save in the case of the *municipios* consisting of larger cities, the financial resources of these *municipios* are inadequate for the satisfaction of even the most fundamental needs, and the state government or even the federal government must be called upon to assist financially, with the inevitable measure of outside control which such steps involve. There were in 1920 exactly 1,300 of these *municipios* in all, of which number 795 had the rank of *ciudades* or cities, and 505 that of *villas* or towns.

CHAPTER VII

NATURAL RESOURCES

IN attempting even a brief summary of the chief natural resources of a country like Brazil it must be realized at the outset that nothing even approaching accuracy in details is possible, for the simple reason that enormous areas are as yet not merely uninhabited, but have not even been superficially surveyed, much less carefully and scientifically examined. Nevertheless, even a partially accurate estimate of the incredible potential resources of the country is essential to one who would form some adequate mental picture of the country with which we are dealing.

These natural resources may be grouped into four main classes: the soil, the fauna and flora, the mineral wealth, and water power. To what extent man has exploited these resources will be considered in another chapter. Here we are considering only what the country offers to the economic support of mankind.

Soil

The most striking fact about the soil of Brazil is that, of the more than 3,000,000 square miles that make up its surface, so small a proportion is barren. Tropical forests cover the rich alluvial soils of the great Amazon River Basin, as fertile a region as is to be found anywhere in the world. They spread as well along the eastern slopes of the great coastal range

of Brazil, where they seem to spring right out of the granite sides themselves, evidencing not merely a fertile soil but tropical warmth and abundant rainfall as well. On the rolling areas of the great central plateau forests are less extensive and less dense, congregating where soil or rainfall conditions are most favorable. The typical vegetation of the highlands, however, is shrubs and grasses, which cover the endless plains or *campos geraes* of the interior. But the red loam that is characteristic of vast stretches of the Brazilian plateau, whether nourishing matted grasses, scrub, or forest, is virtually all arable land suitable for the cultivation of any crops for which the conditions of temperature and rainfall are favorable.

There is, it is true, a very considerable area in the northeast of Brazil which is sometimes spoken of as a desert. But it is not the character of the soil which makes it so, but the lack of water. In normal years the soil of this region yields excellent crops of all kinds during the rainy season. But during the long dry season vegetation practically disappears altogether, and when, as sometimes happens, a drouth extends over more than one year, the landscape has all the appearances of a barren desert. Against these terrible drouths, which have destroyed hundreds upon hundreds of thousands of cattle and have been the cause of untold human suffering and death, the federal government is now taking active measures in the shape of huge reclamation and irrigation works. With the water problem solved, these drouth areas will become as fruitful as any in Brazil. In the *sertão* or interior of these northeastern states 75 days of rain, with an annual precipitation of thirty inches, practically all of which falls during the first six months of the year, is

a fair average. This is less than half as much as the normal for the rest of Brazil, both as to total precipitation and as to the number of days on which rain falls.

Fauna and Flora

Of the varied and extremely interesting animal life indigenous to Brazil it is not possible to speak here. From the point of view of economic resources only one class is important and that is the great variety and numbers of fresh and salt water fish. The coastal waters of Brazil abound in sea-food which furnishes a means of livelihood to a considerable fishing population and supplies an important market, though its possibilities have hardly been touched. The great river system of Brazil is likewise rich in fish, the Amazon alone having, according to Agassiz, more varieties of fish than has the Atlantic Ocean. To the Indians and other dwellers along the rivers of the Amazon system, fish supply the most important single article of food. The development of fisheries and the proper utilization of this great source of food was for a time an active concern of the federal government, but has recently been allowed to suffer from neglect.

The flora of Brazil, perhaps the greatest natural glory of the country, would likewise merit extended description from the point of view of the scientist. But here mention can be made only of those kinds of plant life which are of particular economic value to the country. From this point of view they may best be considered under the heads of plants valuable for food, those valuable for manufacturing and construction, and those valuable because of their medicinal qualities. Needless to say this is no rigid classifica-

tion, since there are many forms of plants in Brazil as elsewhere which are economically valuable from more than one or even from all three points of view. Nor does this classification include the many varieties of grasses that cover the millions of acres of grazing lands which even in their untouched state make of Brazil one of the greatest livestock countries of the world. Finally, it must be mentioned that many of the plants indigenous to Brazil and of prime economic value have also been made the object of cultivation along with those of exotic origin, and in some instances the products of cultivation have already become more important than those of the plants in their natural state. These other sources of national wealth will be considered more particularly in other connections, as in the discussion of agriculture and other industries.

Among the alimentary plants indigenous to Brazil first place must be given to the tropical fruits, many of which, though contributing an important element of food to large numbers of the population, are not even known by name outside of Brazil, as their cultivation for export has not as yet been begun. These indigenous fruits are supplemented by scores of others which, though originally introduced into Brazil from other tropical countries, are not merely the object of intensive cultivation, but by reason of natural increase have spread over large parts of the country and in their uncultivated state furnish important foodstuffs to the population. The same may be said of the many tuberous plants, especially the all important *mandioca*, commonly known as manioc or cassava, which, like maize and potatoes, was cultivated by the Indians before the first Europeans came to the western hemisphere.

In addition to the almost countless varieties of tropical fruits, indigenous and exotic, that yield their abundance of nourishment even without cultivation, Brazil has a large variety of palm and nut trees that afford valuable foodstuffs, notably the cocoa palm, the almond tree, and the famous Brazil nut, there known as the *castanha do Pará* or Pará chestnut. The kernels of the Araucaria or Paraná Pine, which grows by the millions in the south, are another valuable source of foodstuffs.

Coffee, which is economically the most important product of the country as regards exports, is neither indigenous to Brazil nor does it thrive well enough in the wild state to be of any importance apart from its cultivation, in which connection this basic product will be considered later on. But there is a native plant of Brazil, the *maté*, the leaves of which furnish a beverage which is very extensively drunk in Uruguay, Argentina, and Paraguay, and even in Brazil, the coffee country. Its scientific name is *Ilex Paraguariensis*, or Paraguayan holly, and in other parts of South America it is commonly spoken of as Paraguayan tea. But the chief center of growth is in the uplands of the Brazilian state of Paraná, and this product is, as we shall see, already an important item of export. Other beverages of general use are prepared from native Brazilian plants, such as the "guaraná" extracted by the Indians of the northern states from the seeds of the *Paullinia cupana* and highly prized for its tonic qualities.

Tobacco, though not to be included among alimentary plants furnishes an important article of consumption and is another indigenous plant in Brazil cultivated and employed by the Indians prior to the

time of the arrival of Europeans. As it has little economic value, however, except under careful cultivation, its rôle in the national production of Brazil will be considered under the head of agriculture.

Of the natural resources in the shape of flora valuable for industry in Brazil, first place must undoubtedly be given to the timber wealth. Although, as has been pointed out previously, the popular conception of Brazil as a land covered with tropical jungles is quite erroneous and not at all applicable to the great Brazilian plateau which in many respects is the real Brazil, nevertheless about 48 per cent or nearly half of the entire area of the country is woodland. The 1,500,000 square miles of Brazilian forests, covering an area as large as the whole of Europe without Russia, contain a wealth that cannot even be calculated, and that has as yet hardly been touched. The woods yielded by this enormous extent of forests include, besides wood for construction, dyewoods, aromatic woods and cabinet woods. In the dense forests of the Amazon there are literally hundreds of varieties of trees with names that have not even an English equivalent, so little are they known outside of the country, some of which have a wood so hard that it resists not only the action of the elements and of insects and worms, but even the instruments of the forester. Many of the most valuable trees are found throughout almost the whole of Brazil, while still others are found wholly or principally in the southern portion of the country. Among the latter may be mentioned the *Araucaria* or Paraná Pine, of which there are hundreds of millions in the single state of Paraná, some of which attain 200 feet in height, with trunks more than a yard in diameter.

An interesting example of a native Brazilian tree that exists in enormous quantities and is of economic value by reason of a great variety of commercial products is the carnauba palm (*Copernicia cerifera*), found especially in the states north of Bahia in the regions where the climate is not too wet. So wide is the range of usefulness of this natural product that the naturalist Humboldt spoke of it as the "tree of life." From the roots is prepared a blood purifier much used in skin diseases; the sap yields a very useful meal; the trunk of the adult palm makes a fine cabinet and building lumber; the fruit, not unlike the date, is an excellent cattle food and when ripe has a sweet, luscious taste and is eaten either in its natural state or made up into a tasty sweet; the stone, almost five inches thick, when roasted furnishes a beverage similar to coffee and contains, moreover, a valuable vegetable oil; the fibrous leaves make excellent cordage and can be used for paper manufacture; while the principal product of the tree is the carnauba wax, extracted from the young leaves. This wax, which contains picric acid and has aseptic properties, has the highest specific gravity of any known vegetable wax and is used for a number of different products, chief among which are phonograph disks, cinematographic films, candles, and matches. Brazil is at present the chief source of this valuable product. Reaching a height of 50 feet, this stately palm, bare of branches from the ground up to its dense crown, is also a characteristic feature of the landscape in which it grows. Due to its rapid growth it is suitable for cultivation, though so far little has been done to replace the thousands of trees cut down each year.

Among the cabinet woods, one of the few of the

many native varieties which is appreciated by the foreigner is the *jacarandá*, furniture from which is highly prized, though there are many others as fine or finer. Among the dyewoods, special mention should be made of the redwood which gave the country its name. The bresil or brazil wood of the Indians was a valuable commercial product at the time of the discovery of America, and the abundance of a similar red dyewood found in the forests of Brazil by the earliest explorers gave rise to a popular name for the country which in a short while wholly supplanted the official name. But there are dozens of other varieties of trees and plants containing dyestuffs, especially indigo, which are native to Brazil and of great potential economic value, but which like the fruits and the cabinet and other woods of Brazil are for the most part unknown outside of the country, and in many cases have not even an English name.

Of the natural products of Brazilian flora, first place must unquestionably be given to rubber. This valuable product, today one of the most fundamental of raw materials in the industrial world, was in use by the Indians of the Amazon Valley at the time of the first advent of the white men. It has had a curious history, for, although its usefulness to the Indians of Central and South America was familiar to the early explorers and missionaries, it was not introduced into Europe until the eighteenth century. It was a hundred years later before any considerable importation took place, and it was not until 1844 that the process of rubber vulcanization, which ushered in the modern era of rubber manufacturing, was patented. The Indians of Central America called the substance *cahuchú*, from which came the French designation *caoutchouc*, and

the Spanish and Brazilian terms *caucho*. The first use of the substance in England was to erase pencil marks, and so the prevalent English designation became "rubber." On the other hand, the use of the product in France for medical purposes in the making of syringes led to the term "seringa," which is employed in Portuguese to designate the substance itself, while its derivatives, *seringueira*, *seringal*, and *seringueiro*, designate rubber trees, rubber forests, and rubber gatherers, respectively. The ordinary designation for rubber in Portuguese, moreover, is *borracha*, which meant originally a leather flask and was applied then to the rubber bottle of the syringe and so to the substance itself.

In 1825 the first shipment of overshoes made of pure rubber by the Indians of Pará was made from Brazil, and from that time on the production of rubber grew by leaps and bounds, Brazil for many years furnishing almost the whole of the world's supply. For reasons that will be considered more in detail in another place, Brazil has lost her supremacy in the world rubber market, but the "Pará extra fine" is still the highest quality of rubber in the market.

The absorbing story of the gathering of rubber and the part it has played in Brazilian economic history will be considered later on. Here it must suffice to mention that the number of rubber trees in Brazil is estimated at over 300,000,000, only a fractional part of which have ever been exploited. They cover an area of nearly a million square miles, the chief region being in the Amazon Valley and along its tributaries. The *hevea brasiliensis*, the true *seringa* or *seringueira*, which yields the best quality of rubber, and which has been introduced so widely during the last twenty or

twenty-five years in the rubber plantations of the Dutch and British East Indies, is a majestic giant of the Amazonian forests reaching a hundred feet in height and attaining more than a century in age. There are at least ten species of the hevea, varying somewhat in habitat and in the character of the latex, as the sap from which the rubber is made is called. In addition there are a number of other rubber producing trees, chiefly the *micranda* in several species, the *manicobas*, especially abundant in the drier interior regions of the northeastern states, and the *tapurú*. Gutta-percha as well as gum elastic, as India-rubber is also called, is found in several native species as well as in those introduced from Malaysia and India.

Aside from the rubber trees, properly speaking, there are in Brazil a great variety of other rubber producing plants, many of which are not restricted to the northern or equatorial regions but extend well down into the central states as far south as 24° S. latitude.

Valuable resins and gums are obtainable from a wide variety of Brazilian genera and species, their employment for medicinal purposes in many cases being practiced by the aborigines prior to the arrival of the European. In this connection mention will be made of some of them in treating of the medicinal plants to be found in Brazil.

Vegetable ivory, secured from the nuts of the piassava palm, is not only an important product for domestic consumption, but also figures among native articles sent abroad. Vegetable oils are extracted from a great variety of native plants, particularly the copaiba, and a number of the palm nuts, such as the piassava, babassú, coconuts, etc. The castor oil plant and the

cotton plant, though both originally introduced into Brazil and subjected to cultivation, also grow wild in considerable quantities and furnish two of the most valuable of the vegetable oils.

Of prime importance from the industrial point of view are the countless fiber-yielding plants indigenous to Brazil. The family of *malvaceæ*, of which cotton is one genus, exists in hundreds of species in Brazil, most of which are useful both as fiber-producing and as cellulose yielding plants, suitable for paper manufacture. Most of the species of palms, which form so important a part of the flora of Brazil, yield fibers that are put to a great variety of uses and are capable of employment in a great many more, from the finest papers to the coarsest straws. Practically all articles manufactured from fibrous plants that are now imported into Brazil are capable of being produced there from native plants, or at least, as in the case of flax, from exotic plants well suited to cultivation in that country. This is only one of many respects in which Brazil still remains dependent on expensive imports from abroad for goods, the raw materials of which exist in sufficient quantities in Brazil to supply the demand, even without cultivation.

This does not exhaust the classes of Brazilian plants which are of use in manufacturing industries, though it furnishes some notion of the natural wealth of the country in that respect. But only one other principal class can here be mentioned and that is the large variety of plants producing tannin, especially valuable in a country in which the cattle industry is so fundamental as it is in Brazil. Among a score or more of varieties rich in this product may be mentioned especially the mangrove, *Rhizophora mangle*, which grows



Avenida Rio Branco—Cut through the Heart of Rio de Janeiro in 1904.

in vast woods in the tidal swamps of the shore line, the bark and leaves of which yield from 20 to 30 per cent of tannic acid; the *barbatimão*, which flourishes on the interior plains of the central states and is even richer in tannin; and the well-known *quebracho* of the southernmost state.

The last group of Brazilian plants to be mentioned under the general head of flora with specific economic value is the group of medicinal plants. The variety of such plants, many of them empirically tested by the aborigines long before the advent of the European and the development of modern scientific medicine, is literally legion. Even the method of preparation of many of these plant medicines is unknown save to the herb doctors of the Indians, and their medicinal values have never been scientifically analyzed. On the other hand, the positive merits of a number of these concoctions have been scientifically established and their place among the materia medica definitely fixed. Quinine, that most important of tropical medicines, is found in at least one variety of true cinchona indigenous to Brazil and in a number of quinas popularly so termed, though not the true Peruvian bark. Emetine is extracted from *ipêcacuanha*, a native of Brazil and found there in large quantities, especially in the western state of Matto Grosso. Caffeine is found in a variety of native drinks, especially the well-known *guaraná* of Amazonas in the north. Sarsaparilla, sassafras, nux vomica, dragon's blood, tamarind, and a host of other more generally known medicinal plants abound in Brazil, as well as many less known varieties and the almost innumerable medicinal herbs employed by the Indians. Related to these medicinal plants are many extremely poisonous plants, the employment of

a number of which was also practiced from earliest times by the Indians.

Mineral Wealth

Of all the natural resources of Brazil, the mineral resources are not only one of the most important types, but also one of the least exploited, and to a very large extent still undetermined as to character and extent. Though the search for precious metals and stones was one of the compelling motives in the acquisition and exploration of Brazil, as it was of Spanish America after the first reports of the fabulous wealth of the new lands in these products were brought back to Europe, unlike the situation in Mexico and Peru, the exploitation of these articles played no important part in the history of the country for nearly two hundred years after its discovery. Then the discovery of gold and of diamonds inaugurated an important chapter in the development of the interior of the country, as has been pointed out in the chapter dealing with the colonial period of Brazilian history. For that reason the gold and diamond resources of the country will be first considered, though they are not today any longer to be regarded as the chief mineral products, much less as the chief potential sources of mineral wealth. The development of the gold and diamond mining industry, and the present output and method of production, will be more appropriately considered in the chapter dealing with the industries of Brazil, attention being concentrated here on the probable potential wealth of the country in these precious minerals. The use of the term "probable" in connection not only with these particular kinds of natural resources, but with practically every one of the various classes of Brazilian

natural resources, is not only demanded by the incomplete character of the geological surveys so far made of the country, but is perhaps even too strong a term to use. In regard to many of these mineral resources the most that can be said is that there are "possible" potential resources, and in some cases it is little more than frank conjecture or even the expression of a patriotic aspiration. Nevertheless, the estimates and conjectures as well as the proven facts constitute the best information available in regard to the matter of natural resources under consideration, and are, therefore, of interest to every one concerned with forming some conception of Brazil.

The chief gold producing area of Brazil, as it is the chief producing area of nearly all the minerals so far discovered in that country, is the great central state of Minas Geraes, lying north of Rio de Janeiro and separated from the coast by the narrow states of Rio de Janeiro, Espirito Santo, and the southernmost tip of Bahia. This state is wholly on the great plateau of Brazil and presents an almost wholly broken surface. The rocks in the eastern portion of the state are chiefly Archean, the western portion being largely Permian, and the ranges containing the principal mineral deposits being presumably Huronian. The *Serra do Espinhaço*, or Spinal Ridge, is the chief gold producing area today, as it comprises the only two important gold mines in operation in Brazil, the Morro Velho and the Passagem mines.

No accurate figures or even estimates are available as to the total amount of gold that has been extracted from Brazil since the first important discovery in 1693. But Eschwege, who took charge of mining operations in the Minas district in 1811, calculated the total

yield from 1700 to 1820 at 524 tons of pure metal, and the total output for Brazil for the two centuries from 1700 up to 1903 has been estimated at a thousand tons. In January, 1918, the federal government entered into a contract with the two British companies that operate the Morro Velho and Passagem mines for the entire gold output of these two properties, which means virtually the entire actual output in Brazil today. Government figures as to the production are not readily available, but for the year prior to the government contract mentioned, the value of the production from these two mines was 475,000 and 115,000 pounds sterling, from the Morro Velho and Passagem mines, respectively. Neither of these mines is nearing exhaustion, and the Morro Velho, though worked almost continuously since 1834, has been showing increased rather than decreased yields as the depth of the mine has been extended.

A number of other mines in Minas have been abandoned after being worked for some years, some of them of very rich yields, such as the Gongo Soco in this same series, which from 1826 to 1856 yielded 12,887 kilograms of pure gold. Many of these abandoned mines still contain much paying ore, 8 grams per ton yield being considered as profitable if properly worked. In the Morro Velho mine in 1917, the year before the government contracted for its entire output, the yield was as high as 24 grams per ton, and hundreds of tests made in the auriferous formations of the Serra do Espinhaço showed an average of 15 to 20 grams per ton, while the average for all of the deposits examined in Minas may be calculated at 12 grams.

The rivers flowing through this region are all more

or less gold-bearing, and placer mining was the method employed altogether for the production of gold during the earlier periods, and is engaged in even today by many individuals on a small scale. Outside of Minas, Goyaz and Matto Grosso were formerly important gold centers. The largest gold nugget ever found in America is reputed to have been discovered in Goyaz, weighing 43 pounds, besides many others of from 5 to 10 pounds each. Though these rich gold fields were abandoned when the surface deposits had been exhausted, it is known that there are still rich fields which would yield good profits if properly worked, and in recent years new operations have been begun in that region. Moreover, gold deposits are known to exist in Bahia, Matto Grosso, and Paraná, where the auriferous sands of various rivers have already been exploited, though shaft-mining has not yet been attempted. In Rio Grande do Sul, the southernmost state of Brazil, considerable gold deposits exist near the city of Lavras, and a British company has been operating there for some years, though without very startling results.

Taking into account only the known auriferous areas, much of the country, as has repeatedly been emphasized, still awaiting surveying, the resources of the country in this precious metal are most extensive. Difficulties of securing capital for the development of this formerly so important a source of national wealth, difficulties related to problems of transport, management, labor, and mining laws encouraging prospecting and development, have stood in the way and today stand in the way of the resumption of gold production. But the valuable deposits are there in profitable form, and the difficulties suggested above are in

process of being reduced or eliminated, so that Brazil will undoubtedly figure among the chief gold producing countries of the world, though today it is rarely associated in popular imagination with that form of economic wealth.

Diamonds, like gold, have proved an important natural resource of Brazil in times past, and, unlike gold, are generally thought of in connection with the natural wealth of that country today. The diamond was not discovered in Brazil until 1721, twenty-five years, therefore, after the first important discovery of gold. The discovery, itself an accident, as the rough stones were found in the possession of ignorant inhabitants who did not know their character or worth, occurred in the present state of Minas Geraes, near the site of the city of Diamantina. This location is at the northern extremity of the same *Serra do Espinhaço* or Spinal Range, which was and still is the chief gold producing center of the country.

Interest in the new discovery immediately supplanted the search for gold in the regions where the precious stones were found. Very shortly after the report to the Crown of the discovery, the diamond extraction was made a government monopoly and all private operations were forbidden under the extremest penalties. The government let out the mining rights under a series of contracts, but the conditions were so onerous that the undertakings could not have proved profitable except for the illegal smuggling that occurred.

There is no accurate record of the total value of diamonds shipped to Lisbon from Brazil, and of course no approximate estimate can even be made of the value of the diamonds marketed in the exceedingly

dangerous but equally profitable smuggling operations. In the forty years from 1732, when private operations were forbidden, to 1771, when the government substituted direct operation for the contracts with concessionaries, the value of the diamonds shipped to Europe in the legalized business exceeded 3,600,000 pounds sterling, or roughly \$18,000,000. New diamond fields were discovered in other parts of Minas and in the provinces to the west, Goyaz and Matto Grosso, which had also played so important a part in gold production. One of the contractors in the district of Diamantina, forgetting his contractual obligations to the Crown, was summoned to Portugal in the closing years of the period of concessions, just prior to 1772, and fined 11,000,000 cruzadoes, while another, Felisberto Brant, similarly discovered in cheating the Crown, possessed properties in Brazil that in forced sales brought two million cruzadoes. From 1801 to 1817 the entire output of the mines was paid over to the banking houses of Hope and Baring Brothers, in satisfaction of a debt of 12,000,000 florins. Dom João VI is reputed to have sent back to Portugal over 40,000,000 cruzadoes worth of diamonds, and during the years from 1772 to 1843, over 1,354,720 carats of diamonds were sent to Europe.

During the empire the production of diamonds fell off considerably, the existence of the ancient *direito real* or royal property in all mines being affirmed by jurists of the emperor as late as 1866, even under the constitution of 1824. With the adoption of the republican constitution in 1889, the right of the owner of the land to the minerals found therein was definitely established. The total exportation of diamonds from their first discovery to 1903 has been estimated

roughly at four tons, comprising stones of all kinds, though this is little more than a guess.

Some of the most famous of the world's diamonds have come from Brazil. Chief among these is the notable *Estrella do Sul*, or Southern Star, found in 1853 in the river Bagagem in the southwestern part of the state of Minas Geraes. This stone, which weighed in the rough 255 carats and when cut 125 carats, was found by a negro slave and sold by his master for 304 contos of reis, or about \$75,000. Subsequently it was purchased by the Gaekwar of Baroda for 80,000 pounds, or more than five times its original cost. Other famous Brazilian stones are the Dresden diamond, found near the same spot in 1857, weighing 120 carats in the rough, and a large number of stones of lesser weight but of great fineness and value.

During a visit by the author to the mining regions of Minas in 1923, a stone of 26 carats was picked up in the bed of a small stream just west of Ouro Preto, and in 1920 the value of the diamonds exported was over 5,000 contos of reis, the equivalent at that time of more than 300,000 pounds sterling, or nearly a million and a half of dollars, which shows that in spite of the slowing up of the diamond production as compared with the activities of the early years following discovery, it is still an important source of wealth. Of the methods of mining the diamonds and preparing them for the market, something will be said in a later chapter. It remains here merely to point out the principal known diamantiferous regions of the country.

Diamonds have so far been encountered in widely separated regions in the six states of Minas Geraes, Bahia, Goyaz, Matto Grosso, São Paulo, and Paraná. The principal diamond region of Minas Geraes is the

same as the principal gold region, namely the *Serra do Espinhaço*, in the eastern portion of the state, with the environs of the city of Diamantina as the center. In this region diamonds are encountered in practically all the ravines and streams. Other rich deposits in Minas are in the region around Bagagem, where the three largest diamonds discovered in Brazil were found, and in the streams Abaeté, Somno, and others that feed the headwaters of the São Francisco.

The state of Bahia is rich in diamond deposits, the principal region being the so-called *Chapada Diamantina*, or Diamond Plateau, extending along the right bank of the São Francisco, north of the Minas fields. The diamonds here are smaller than those of Minas, and though of various tints are principally bluish. Closely associated with the real diamonds are the carbonadoes or black diamonds, found in this region in great quantities. They are even harder than crystallized diamonds and are therefore of great value in cutting, though before their value was recognized they were thrown into the discard for many years.

Diamonds, generally small in weight but of good color and first water, are found in the state of Goyaz in the rivers Verissimo and Claro in southern Goyaz, though no systematic survey of the resources of that state has yet been made. In the former river a diamond was found a few years ago which sold for 80 contos of reis, or about \$20,000.

In Matto Grosso there are three well defined diamond regions, Diamantino, Cuyabá, and Coxim, all in the central portion of the state, in rivers flowing down from the so-called Plateau of Matto Grosso (Planalto de Matto Grosso). Though the proven region is quite extensive, the stones so far discovered are small.

In São Paulo numerous small stones have been found in the rivers Verde, affluent of the Itararé in the south, and in the Sapucahy in the north, evidently a continuation of the Minas region.

Paraná likewise shows numerous examples of diamond bearing streams, particularly the Tibagy in the northern portion of the state and in the region near the city of the same name. Though for the most part small stones only have been found, some of as much as 12 carats have been discovered. But none of the regions so far explored in this state or São Paulo give promise of any such riches as have been unfolded in the Minas regions.

Large portions of Brazil, it must be repeated, where the characteristic formations in which diamonds have generally been found are encountered, remain to be surveyed or prospected and no estimate can be made of the possible extent of deposits. But new discoveries of diamantiferous regions having repeatedly been made in recent years, the presumption that the supplies of this precious stone have not been nearly exhausted even after two centuries of exploitation seems justified.

One item of considerable interest in connection with the diamond resources of Brazil remains to be mentioned. A British traveler in and writer on Brazil, J. C. Oakenfull, in his "Brazil," quotes from the official paper of Minas Geraes of April 21, 1913, to the effect that agents of the great South African De Beers syndicate instituted a systematic campaign of calumny in the United States to belittle both the quantity and the quality of the Brazilian diamonds. One of the directors of that syndicate is reported to have declared, before ever putting his foot on shore, that

the diamond in Brazil was a myth, while another frankly declared that it did not matter whether diamonds existed in concentrated quantities in Brazil or not, as the industry would be crushed whatever it cost the De Beers syndicate.

Though Oakenfull expressly refrains from adding anything to the quoted extract, he does state that undoubtedly many fine stones are sold in London as South African, the De Beers Company being the largest buyers of Brazilian diamonds. And in another place he says: "Brazilian stones are considered to be 50 per cent better on the average than those from the Cape, owing to the constant attrition they have undergone for many centuries, thus removing all impurities and incidentally providing for the survival of the hardest and most flawless stones." In the light of these statements it is not difficult to believe that the popular impression in the United States that Brazilian diamonds are inferior to South African stones is the result of skillful propaganda, and not based on actual facts.

Gold and diamonds, as has been seen, have played the most spectacular rôle among the mineral resources of Brazil, and by their very nature attract the most attention and interest today. But they are by no means the sole representatives of precious metals and stones encountered in that country, and a brief mention of some of the others, potentially if not actually among the important sources of mineral wealth, may not be out of place.

Platinum has been discovered in a number of places, closely associated with gold and diamonds. The principal known region is in the gravels of the river Abaeté, a tributary of the São Francisco in the cen-

tral part of the state of Minas Geraes, already noted as one of the chief diamond regions of Brazil. It is also encountered in some of the rivers of the eastern slopes of the Serra do Espinhaço, and some traces have been found in the auriferous streams of Matto Grosso.

Radioactive substances have been found in two districts in the state of Minas, the municipalities of Pomba and São João Baptista respectively, belonging to the groups known as euxenite and fergusonite. An analysis of the former showed a content of about 10 per cent of uranium oxide.

Tungsten is encountered in wolframite in the southernmost state of Rio Grande do Sul and in scheelite in the gold regions of Minas.

Aluminium is found in bauxite ($\text{Al}_2\text{O}_3, 2\text{H}_2\text{O}$) in the state of Minas Geraes, especially at Ouro Preto, where the alumina content was analyzed as high as 60 per cent. But so far no attempt has been made to extract this valuable metal and all of the aluminium used in Brazil is still imported.

Chromium, in the form of chromite, is encountered principally in the state of Bahia, a deposit of 25,000 visible tons having been encountered on the Bahia Central Railway near Santa Luzia. Exports have already been made to the United States, other large deposits having recently been discovered.

Copper is found in a number of states of Brazil, the chief deposits so far examined, however, being in Bahia and Rio Grande do Sul. In the former state the copper ore of the Carnahyba deposits is chiefly in the form of malachite and chalcopyrite. In Rio Grande do Sul considerable extraction took place until the fall in the price of copper coupled with the high

cost of extraction, concentration, and transportation made further workings unprofitable. The chief operations occurred through a Belgian corporation beginning operations in 1901 at Camaquan, but other deposits have also been worked. In Maranhão, Ceará, Rio Grande do Norte, and Parahyba, deposits have also been located, the copper traces so far found in other states being purely of scientific and not commercial interest.

Lead in the form of galena or native lead sulphide has been found and examined in Minas Geraes, São Paulo, Paraná, and Bahia. The best known deposits are in the *Ribeirão do Chumbo* or Lead Creek in the municipality of Abaeté, State of Minas Geraes. Though known a century ago to contain as high as 150 grams of lead per 100 kilos of galena, no attempt has yet been made to exploit it. In the deposits at Yporanga, in the state of São Paulo, the lead ore is found to contain 450 grams of silver per ton.

Manganese, so important an element in the manufacture of steel, is found in Brazil in large quantities, especially in the states of Minas Geraes and Bahia, though promising deposits have been found in Matto Grosso as well in recent years. In the state of Minas the principal regions are around Lafayette, near the town of Queluz, 462 kilometers by rail from Rio. By far the most important deposit so far exploited is that of Morro da Mina, belonging to the Bethlehem Steel Company. The ore here is of the finest variety, showing up to 1915 a uniform content of 50 per cent metallic manganese, with 5 to 7 per cent iron, 2 to 3 per cent silica, and with just a trace of phosphorus. During the period of increased demand, owing to the needs of the steel industry during the war, ores of as low a

manganese content as 45 per cent, which had formerly been rejected, were made use of. The visible ore in this one region alone is calculated at some 10,000,000 tons, the total extraction up to 1920 being about a million and three quarters, the capacity of the mine being about 1,000 tons a day. In 1920 the exports of manganese ore amounted to over 450,000 tons, of which some 66,000 came from this mine.

Near this same district is another important deposit, some 30 miles from the station Christiano Ottoni on the Central of Brazil, known as the Cocuruto deposit, from which over a million and quarter tons of ore were extracted up to 1918, though the mine ceased operation in 1921 due to unfavorable working conditions. The Miguel Burnier district, showing a deposit some six miles long, is another important manganese region in Minas which has only been partially worked.

In Bahia the principal manganese districts are Pedras Pretas, Sape, and Onha in the municipality of Nazareth near the coast and some 80 miles from the capital of the state. Here the manganese content is about 44 per cent and during the World War these deposits were worked but have since been abandoned as unprofitable.

The Matto Grosso deposits have scarcely even been surveyed, though the deposits at Urucum near the city of Corumbá have been estimated at 250,000 tons of visible ore with an estimated total of 15,000,000 tons if the veins are continuous. The difficulties of mining and the expense of transportation in this remote region make these deposits unworkable at the present time, however.

Monazitic sands, valuable chiefly because of their thorium content, which in some cases runs as high as

5 per cent, and employed in the manufacture of gas mantles, are common along the coasts of Brazil from Rio de Janeiro northward, especially in Bahia. They are found also in considerable quantities in the rivers of the states of Rio de Janeiro, Espirito Santo, Bahia, and Minas, and because of the radioactive principles contained in them may prove to be of great value in other directions also. Before the Great War thousands of tons were exported to Germany, and though the exportation diminished during the years of the war, a thousand tons were exported in 1920, and the reserves of these valuable sands in Brazil are believed to be greater than those of all the rest of the world.

Silver is encountered in small quantities in the various deposits of lead, copper, and gold ore, the chief output being from the Morro Velho gold mine in Minas, which is purchased in toto together with the gold output by the government. In the lead ores of the Morro de Chumbo in São Paulo, the silver content is about 450 grams per ton of lead ore.

Zinc has been found in blende ore or zinc sulphide, in various points of Brazil, but chiefly near Ouro Preto, with a zinc content of 62 per cent, but not as yet in marketable quantities.

Of vastly more importance in the economic resources of Brazil than most of these minerals so far enumerated, are the basic raw materials of coal, iron, and petroleum. Of the first and last, the known resources are unfortunately very limited. Of the second, the supply is well-nigh inexhaustible.

More than a million tons of coal were imported into Brazil in the year 1920, the high water mark for imports in general, costing nearly 8 million pounds sterling, an average of 7 pounds, or something over

thirty dollars a ton. And yet the coal deposits of Brazil have been estimated at as much as 2,000,000,000 tons, as yet scarcely touched.

The principal coal regions so far surveyed and exploited in Brazil lie in the four southernmost states of Rio Grande do Sul, Santa Catharina, Paraná, and São Paulo.

In the two first named states, some half dozen mines actually in operation, at São Jeronymo, Butia, Candiota, and Caçapava, in Rio Grande do Sul, and at Crescuma and Tubarão in Santa Catharina, produced in that year of record coal imports nearly 300,000 tons. The coal is of the soft or bituminous variety and not of very high grade, the best Brazilian coal showing an ash content of 27 or 28 per cent, with from 0.6 to 1 per cent of sulphur, but with a relatively high calorific power of 5,600 to 6,000. As mined, the Brazilian coal is considered to be equal to not more than 70 per cent of the best Welsh. The most important mine of all, the S. Jeronymo, produced alone in 1921 as much as 215,000 tons of coal, and experiments have shown that in the pulverized state this Brazilian coal yields very satisfactory results. The boilers both of the national warships and of national merchant vessels, when modified for the use of this powdered coal, have used it to advantage, and recently new locomotive engines have been ordered by the national Central Railway, especially adapted for this form of fuel.

In Paraná and São Paulo the coal beds are less extensive but of some commercial importance, and coal seams are known to exist also in the northern and western states of Maranhão, Amazonas, and Matto Grosso, though no efforts have as yet been made toward their exploitation. The importance of the

coal deposits of Brazil in relation to the steel industry which the government is planning to develop will be touched upon again later.

For ordinary fuel purposes, including stationary and locomotive engines, as well as for steamers on the rivers, the vast timber resources are largely employed, and wood coke is likewise easily obtained. In addition there are very extensive deposits of brown coal or lignite, especially in Minas Geraes, at Gandarella, and Fonseca, though the only deposit actually being worked is in São Paulo, a few miles south of Caçapava. Amazonas likewise contains large lignite deposits in its extreme western portion. Peat is also found in various localities, suitable for briquettes as fuel for locomotives.

In view of the world-wide rush for oil, and especially in view of the rich fields found in recent years in other countries of South America, it is rather astonishing that so little has been done in Brazil to survey the resources of the country as regards this fundamental mineral product. Oil indications have been found in a number of points in Brazil, especially in São Paulo and Paraná, but no serious attempts at drilling have as yet been made. Bituminous schists, rich in oil and gas, have been discovered and in part analyzed in ten or a dozen states from Amazonas in the north to Rio Grande do Sul on the south, the only attempt at exploitation so far being in the state of São Paulo.

The continual discovery of new oil fields in the United States and in other countries of the world, including South America, in regions where in many cases there were no *a priori* reasons to suspect deposits, makes it very unlikely, to say the least, that

in the vast extent and variety of geologic formations in Brazil this valuable product should not be found in considerable quantities. Largely dependent in this regard, as in so many others, on foreign capital for exploitation, the development of these potential resources awaits the adoption of a national policy which, while safeguarding the interests of Brazil, shall be attractive enough to induce foreign capital to assume the risks inseparable from the prospecting and drilling for oil. It is hardly necessary to point out, however, that the experience of Mexico and other oil-producing countries justifies a policy of caution and conservatism in admitting the powerful and unscrupulous oil interests of the world to a foothold in the country.

When we come to the iron resources of Brazil, the realm of possibilities yields more largely to the world of actualities and known facts than is the case in some of the other mineral resources so far considered.

Iron was discovered in Brazil before the close of the sixteenth century, and in the year 1600 a foundry was set up at Ipanema in São Paulo, probably the first on the American continent. Now iron is known to exist in various forms in practically every state of the Brazilian Union. But the great center of these deposits is in the state of Minas Geraes, covering an area some three hundred miles long by thirty miles in width. On the basis of visible deposits, the ore in this region alone is calculated at 3,500,000,000 tons, or about one-third of the total known iron ore reserves of the world.

This ore has been analyzed to yield as high as 70 per cent of metallic iron, with only slight traces of sulphur and less than 1 per cent of silica. The chief iron ores are either magnetites, as in the southernmost

states, or hematites as in Minas Geraes, known in Brazil as itabirites. The Itabira region, northeast of Bello Horizonte, acquired by a British syndicate, awaits only the completion of the rail line from Victoria in the state of Espirito Santo for its active exploitation. The difficulties of transportation and of treatment of the ore once overcome, this will make this the principal iron producing region in the world. With coke more easily accessible, the conversion of the iron into steel will be performed in Brazil itself, whereas up to the present the iron ore would have to be treated and manufactured into steel abroad and then reimported as the finished product into the country of its origin. Of the beginnings that have already been made in the steel industry, something will be said at another place.

Space does not permit of an extended enumeration of the resources of Brazil as regards precious and semi-precious stones other than diamonds that have already been considered. Amethysts, beryls, emeralds, garnets, opals, rubies, sapphires, topaz, and tourmalines are among the stones that have been found in varying quantities and of varying degrees of quality, some of them being among the finest examples of their kind ever found. To tourists in Brazil, these products are among the most attractive and characteristic of the country, though they can hardly be said to constitute an important source of national wealth.

Water Power

If the power resources of Brazil in the shape of known supplies of coal and mineral oil are surprisingly small for a land of such enormous extent and

varied structure, this deficiency is more than made up in the truly astonishing possibilities of water power. As the utilization of water power is being studied and applied with ever increasing intensity in a country as rich in coal and oil as is the United States of America, it is natural that the subject should arouse the greatest interest in Brazil, relatively deficient in the latter but wonderfully endowed with the former. And yet even here, where surveys and estimates are much more easily made than in the case of hidden mineral resources, much remains to be done to furnish an accurate and adequate conception of the practical possibilities of hydro-electric power in the Brazilian rivers. Only a few of the more important features can be touched upon here.

Mention has already been made in an earlier chapter of the remarkable network of rivers that covers Brazil from north to south and from the coastal range to the western extremities. Important as the hydrographic system is in relation to the climate, products, and transportation system of the country, its importance from the point of view of potential power resources is destined to assume a leading rôle. Owing to the topographic nature of the country, which, as has been seen, is that of an immense elevated plateau bounded on the north by the basin of the Amazon and on the west by the basins of the rivers belonging to the Plate system, most of the rivers of the country originate on the plateau and descend rather abruptly to the great basins mentioned. They do this in the majority of cases by one or more great falls, which by reason of the large volume of water present even in the dry season, and the distance of their descent, furnish great opportunities for water-power development to com-

pensate for the obstructions to continuous navigation presented thereby.

This feature is less characteristic of the rivers that descend into the Amazon basin than of those that flow southward and westward into the Plate system, and the Atlantic seaboard, as has been noted, is curiously deficient in large streams south of the São Francisco, owing to the way in which the eastern ranges of the great plateau crowd down to the sea. Nevertheless, both the eastern or coastal system and the affluents of the Amazon exhibit falls capable of power development.

It will needs suffice for the purposes of this survey to mention some of the principal falls, grouped according to the location of the rivers into those of the Amazon system, those of the eastern system, and those of the Plate system, with a brief statement concerning the power resources of the outstanding falls.

In the Amazon basin the principal falls are the Pancada and Desespero in the river Jari that flows into the Amazon at its mouth on the left bank. These falls have a sheer descent of 65 and 80 feet respectively at the points where the river leaves the Guiana highlands in which it has its origin and descends to the Amazon bed. The Panama Falls in the river Parú, which likewise originates in the Guiana highlands and empties into the Amazon near its mouth, have a drop of 33 feet. The river Trombetas, which descends from the Guiana highlands also and empties into the Amazon near the city of Obidos, contains a large number of cataracts, of which the principal one, Fumaça, has a drop of 85 feet.

Of the affluents on the right bank of the Amazon, which flow down from the great Brazilian plateau, the

Madeira, though containing many rapids, notably the San Antonio Falls, which caused the construction of the Madeira-Mamoré railway, has no striking falls. The same may be said of the Tapajós and the Xingú. But in two of the affluents of the Tocantins, viz., Dois Irmãos and Rio das Almas, there are two falls of over 200 feet each, and one of more than 100 feet. At the headwaters of the Tocantins, in the Maranhão River in the state of Goyaz, there are the falls of the Rio Preto with a drop of nearly 250 feet.

In the eastern system of rivers, that is, those that empty directly into the Atlantic, there are a number of important falls. Chief among them all, and one of the great falls of the world, are the Paulo Affonso Falls, in the São Francisco, some 200 miles above its mouth. These falls have a total drop of 263 feet in three successive falls. In the Paraguassú, further south in the state of Bahia, there is one fall of over 70 feet, the Timborá, and in the Jequitinhonha, in the same state, one of 143 sheer drop, the Salto Grande. In the Parahyba do Sul, which empties into the Atlantic, in the state of Rio de Janeiro, there are two important falls, the Salto do Parahyba and Lavrinhas, of 88 and 91 feet drop respectively. Farther south, along the Atlantic coast, there are no falls of importance.

Of the many falls in the rivers of the Plate basin only two or three can be especially mentioned. In the Uruguay River there are the falls known as the Salto Grande do Mocunan, with a drop of nearly 40 feet. In the river Tieté there is one, the Itapura, of the same height, and in the Paraná one of 33 feet. But two falls of this system so far exceed the others in importance that they deserve to be classed by them-

selves. These are the Falls of Guaira, or the Cataract of the Seven Falls, as it is generally known, in the Paraná River, on the boundary between the state of Paraná and Paraguay, and the Salto de Santa Maria, or Iguassú Falls, on the boundary between Brazil and Argentina, just above the point where the Iguassú flows into the Paraná.

The first of these two outstanding falls, Guaira or Guahyra, drops in seven successive cataracts some 300 feet, over rocks inclined at an angle of 45 to 50 degrees, the principal fall known as the fifth, having a descent of 57 feet. The enormous volume of water descending over these falls, calculated at 18,000 cubic meters, or roughly 23,500 cubic yards of water per second, makes it one of the most powerful, if not the most powerful fall in the world, with an estimated generative capacity of 4,000,000 horse power.

The other cataract, that of Santa Maria, or the Iguassú Falls, is perhaps even greater in available energy. It has a sheer drop of over 200 feet, or more than 40 feet higher than Niagara Falls, with a volume of water greatly exceeding that of world-famous Niagara.

Small hydro-electric stations have been erected in numerous portions of Brazil, utilizing only the least significant of the potential power sources. With the Paulo Affonso Falls capable of producing some 2,000,000 horse power, the Guaira with its potential 4,000,000, and the Iguassú with at least an equal power, the resources of these three major falls alone, all quite untouched, and in different portions of the country, give some conception of the water power resources of Brazil, there being in addition a half dozen of the falls enumerated above with horse power

varying from 100,000 to 700,000 each. Once the demands of the country make the development of these untouched resources profitable, Brazil need not be greatly concerned over her relative deficiency in coal and oil for fuel purposes.

CHAPTER VIII

POPULATION

Among the basic factors that enter into the creation of a state, obviously none is more important than the human factor. The racial composition of the population, its distribution, rate of increase, and modification by immigration, as well as the vital statistics relating to birth, disease, and death rate, are all important phases of the composite whole that gives some conception of the Brazilian people. In all of these respects the origin and development of the Brazilian nation present peculiarities that demand at least brief mention in a presentation of the main features of the country with which this work is concerned. They will, therefore, be passed in rapid survey at this point, following the description of the physical resources of the country considered in the last chapter, and preceding the activities of the population about to be described in the next.

Racial Composition

The people who discovered Brazil and contributed most largely to its settlement in the early days were, as has been seen, the Portuguese, and they gave the country its language and its basic racial type. Just as the British settlement of North America, which made the United States an English-speaking country and stamped its main features indelibly upon it as an

Anglo-Saxon nation, in spite of enormous acquisitions of non-English territory and non-English peoples, has been profoundly modified by other factors, so Brazil, though fundamentally Portuguese, or at least much more Portuguese than anything else, has, in the course of its long history, acquired and developed characteristics which distinguish the Brazilians from the Portuguese even more than the Americans differ from the British. Even the Brazilian language, not merely as spoken but even as written, has developed its own vocabulary, pronunciation, and construction, though to the foreigner these differences are not apparent without careful study. But the popular American pastime of poking fun at Englishmen, their manner of speaking, and their ways, is duplicated in Brazil towards their cousins, the Lusitanians or *Lusos* as they are popularly termed in Brazil.

In an earlier chapter of this work, dealing with the discovery and settlement of Brazil, it was pointed out how composite was the Portuguese race itself that furnished the first European inhabitants of Brazil. Iberians, Celts, Phœnicians, Greeks, Carthaginians, Latins, Visigoths, Jews, Moors, and even Ethiopians, had all contributed in successive periods and in varying degrees to form the Portuguese people.

Of this composite race, the representatives who first peopled Brazil represented the most varied elements. Trusted noblemen of the Court, noblemen in disfavor, churchmen, plain adventurers, artisans, peasants, political exiles of all ranks, and common criminals, made up the mass that, in the years after colonization began in earnest, cast in their lot with the new country. No statistics of any kind are available as to the actual number of settlers that came over from Portugal in

the early period of colonization. But estimates of Father Anchieta with reference to the year 1583, more than three-quarters of a century after the first discovery, will serve to indicate how small was this influx. In that year the total number of Europeans was calculated at only 25,000, while the number of civilized Indians was given as 18,500, and of African slaves as 14,000.

Conjectural as these figures undoubtedly were, they serve to emphasize two or three salient features of the early settlement of Brazil. As the number of settlers that went to Brazil prior to the sending of Thomé de Sousa as first governor-general in 1549 was negligible, this meant that the average annual increase in the white population in the thirty-five years to 1584 was only about 700. Immigration provided this annual increase, and as the number of Portuguese women who came to Brazil was very small, so that the normal excess of births over deaths could not be counted on as a factor in increasing the population, it had also practically to equal in addition the normal death rate. But even so, the annual immigration during those years was evidently very small.

Now this absence of European women in the early colonization was in itself a factor of great importance, for it resulted in the mating of the Portuguese colonists with the Indian women of the seaboard tribes. While the Indian men were enslaved or exterminated, the women bore children to the colonists, most of whom became a recognized part of the colonial population, and many of whom attained positions of some importance. The romantic figures of Caramurú in Bahia and João Ramalho in São Paulo, who married daughters of Indian chiefs and became patriarchal heads of

a numerous half-breed progeny, had many counterparts of a humbler character who augmented the population of the early settlements by a strong strain of Indian blood. In the course of time, with the gradual disappearance of the pure native population from the settled portion of the coast, this Indian strain became so diluted as to be almost indistinguishable in the population of those portions of Brazil where European immigration continued to pour in. But in some portions of the northeast of Brazil, as in Ceará for instance, the Indian characteristics are still very pronounced in the physical appearance of much of the population, and even where there are no distinguishing physical characteristics any longer in evidence, the Indian admixture undoubtedly still plays some rôle in differentiating the Brazilians in whose blood it flows from the Portuguese of wholly European extraction.

Aside from the presence of the considerable number of "civilized" Indians reported by Anchieta for the year 1583, another striking fact is the large number of African slaves present even at that early period. Though the total number of African slaves brought into Brazil is as little known as is the number of natives who existed in that country upon the advent of the European, the rôle played by the negro element in the population of Brazil is capable of being more exactly determined than in the case of the Indian element. The importation of slaves into Brazil continued for three hundred years, the final abolition of the slave trade not taking place until 1850. It is only after that period, therefore, that the effect of the negro element, not augmented by renewals from the outside, on the racial composition of the population

can be studied. But two or three elements of importance are distinguishable even from the imperfect data available from colonial days.

First of these elements is the astonishing increase of the negro population, not merely absolutely but in relation to the white population. Accepting Anchieta's estimate for 1583 as approximately correct, there were at that early date about three-fifths as many negroes as whites in Brazil. An estimate of the population made by Malte-Brun for the year 1830, gave the number of whites as 1,347,000, and the number of negroes as over 2,000,000. These numbers, it must be remembered, like all of the vital statistics for Brazil up until very recent times, are little more than pure guesses. But accepted as the best information available, they would show a nearly exact reversal of the relation between whites and negroes. The census estimates of 1872 again showed a remarkable reversal in these figures, the number of negroes being but half of the number of whites. By 1890 the proportion was still smaller, having sunk to less than one-third as many negroes as whites. The last census, for the year 1920, gave the negro population as less than one-fourth of the white population, and based on the rate of increase of the two elements during the last 50 years, it has been calculated that at the end of another century the pure negro element will have virtually disappeared as a factor in the population of Brazil. But this does not mean that the influence of the negro racial element will have disappeared, for the diminution of the negro element as shown in these figures is due not merely to the high death rate, but also to the very extensive intermingling of the white and black races, which places their offspring in the category of

mulattoes or *mestiços*, and out of the category of *pretos* or negroes.

Here it is necessary to point out that in the enumeration of the racial elements in Brazil a different process is followed than in the United States of America with reference to the negro and part-negro population. Whereas in the United States, where intermixture between whites and blacks is stigmatized, all persons of part-negro blood are classed as negroes, however much the white characteristics may predominate, in Brazil they use a different classification. Only black persons showing no trace of white ancestry are classed as blacks. All persons showing evidence of both white and black ancestry are classed as mulattoes, while those whose appearance exhibits no trace of negro ancestry are classed as white, even though there may be some negro blood in their veins. By the process of intermingling, which has been going on for three hundred and fifty years and more, the class of mestizos or mulattoes has been continually recruited from the negro class. The loss to the natural increase of negroes was not made up after the cessation of the slave trade by the entrance of more pure blacks, whereas the loss to the natural increase of pure whites due to mating of whites with negroes, was more and more made up by increased European immigration.

A study of the population of the state of Minas Geraes made by Eschwege in 1821 showed some important and interesting demographic factors at work in this connection. In the free population, the birth rate among the negroes was, it is true, higher than that among Indians, whites, or mulattoes. But this factor was much more than offset by the remarkably high death rate among the negroes, almost the double

of that for whites and mulattoes. In the negro and mulatto slave population the mortality was even greater. On the basis of those studies it can be calculated that without considering the influence of the white immigration at all the relative contribution of the four ethnic groups to the population of the country, expressed in index numbers, would be as follows: Whites + 1.21, Mulattoes + 0.92, Indians + 0.34, and Negroes — 0.62. In other words, if no immigration of whites into the country had occurred at all after that time, the negroes would, under the conditions then existing, have slowly disappeared, while the natural increase of Indians and mulattoes taken together would have been equaled by that of the whites.

By a process of natural selection, similar in the case of the negro elements to the early developments with regard to the Indians, the mestizo type tended to approach more and more toward the whites, of whom the immigration, being overwhelmingly masculine, supplied an excess of white progenitors willing to mate with mulattoes. For that reason, the number of mulattoes has steadily increased in relation to the pure negroes, though steadily falling behind in relation to the pure whites. Not only, therefore, is the negro element gradually disappearing, but the mestizo element is both diminishing in relation to the number of pure whites and at the same time showing a higher and higher percentage of white blood.

This transformation, which has apparently been proceeding uninterruptedly ever since the influx of negroes was shut off seventy-five years ago, is called in Brazil the "arianization" of the race, and is true of the population of the country as a whole. But its manifestations vary enormously for the different por-

tions of Brazil. The portions of Brazil which received the great bulk of the slave traffic, have also in general been those that have received the smallest current of European immigration. Hence, there the arianization process has been very slow, much slower than the average for the country as a whole. On the other hand, the states that had in general the smallest influx of negroes in slavery days, have had a large European immigration, especially since the cessation of the slave trade. Here the process of arianization has been very rapid. In Rio Grande do Sul, for instance, the proportion of negroes in the population dropped in the years 1872-1890 from 18.3 to 8.7 per cent, while for the country as a whole it dropped in those same years from 19.7 to 14.6 per cent. The pure white population in that state at the same time increased from 59.4 to 70.2 per cent, while the white population for the country as a whole had increased from 38 to 44 per cent. Other southern states show similar developments.

At the beginning of the period of the republic, 1890, the distribution of the various ethnic groups among the various states is indicated by the following table, classified as whites, blacks, natives, and mestizos, giving the percentage of the population of each state belonging to each group. Since that time, as will be seen, some 3,000,000 white immigrants have entered Brazil, increasing the proportion of pure whites for the country as a whole to well over sixty per cent, and reducing the proportion of negroes from nearly 15 to 12 per cent. As over 90 per cent of this immigration entered the ports of Rio de Janeiro and Santos, it has affected profoundly the percentage of white population in the federal district and the state of São Paulo, but otherwise the figures may be taken to reflect a

fairly accurate picture of the distribution of these ethnic elements even today.

RACIAL ELEMENTS IN BRAZIL IN 1890

<i>States</i>	<i>Whites</i> %	<i>Negroes</i> %	<i>Indians</i> %	<i>Mestizos</i> %
Alagoas	31.08	10.14	18.40	40.38
Amazonas	28.32	3.03	48.38	20.27
Bahia	25.59	20.39	7.83	46.19
Ceará	44.51	8.65	17.12	29.72
Federal District	62.72	13.35	3.33	21.60
Espírito Santo	42.14	16.09	6.38	35.39
Góyaz	33.53	13.03	11.26	42.18
Maranhão	31.63	15.16	15.22	37.99
Matto Grosso	29.83	13.86	14.89	41.42
Minas Geraes	40.60	18.31	6.15	34.93
Pará	39.21	6.76	19.94	34.09
Parahyba	46.89	7.08	10.71	35.32
Paraná	63.80	5.17	12.37	18.66
Pernambuco	41.14	11.53	7.71	39.62
Piauí	28.34	15.18	20.19	36.29
Rio de Janeiro.....	42.95	26.79	2.16	28.10
Rio Grande do Norte....	44.12	8.98	9.39	37.51
Rio Grande do Sul.....	70.17	8.68	5.35	15.80
Santa Catharina	84.79	4.80	3.25	7.16
São Paulo	63.07	12.97	8.24	15.72
Sergipe	29.72	14.77	6.52	48.99

From the above table certain main facts as to racial distribution stand out very clearly. Of the six states in which the percentage of the Indian element is strongest, five are the states of the northernmost tier, running east from Amazonas to Ceará inclusive. With the exception of the state of Ceará, these five are all included in the group of six states having the sparsest population, and Goyaz and Matto Grosso, which rank next in the percentage of the Indian element in their population, have the lowest density of population of all, excepting Amazonas, which has fewer inhabitants per square mile than Goyaz. The Indian element remains the strongest, therefore, in the states that have had little European immigration. But with the

exception of Amazonas, in which the Indian element reaches the high proportion of almost one-half of the population, the proportion of Indians even in the frontier states attains as much as one-fifth in only one state. It must be emphasized, however, that the statistics with regard to the Indian element do not include the uncivilized Indians living still under their tribal organization, the number of which is even yet not exactly known.

The proportion of negroes is greatest in the three states of Rio de Janeiro, Bahia, and Minas Geraes, attaining almost 27 per cent in the first named. It is smallest in Amazonas, where the Indian proportion is greatest, while in Rio de Janeiro, where the negro proportion is greatest, the Indian element is negligible. The negro was concentrated in the regions where agriculture and mining preponderated. In the colonial period he was found principally, at first, in the sugar growing regions of the coast. Then with the era of gold and diamond discoveries he was moved west into Minas, Goyaz, and Matto Grosso. Then when the coffee era began he appeared in great numbers in lower Minas and western Rio de Janeiro, as well as in São Paulo.

The pure white population, as was to be expected, shows the highest proportion in the states that have received the largest European immigration since the days of independence. The four southernmost states of Rio Grande do Sul, Santa Catharina, Paraná, and São Paulo, showed, in 1890, even before the great influx of immigration that began with the establishment of the republic, percentages of pure white population as follows: 70.17, 84.70, 63.80, and 63.07 respectively. The smallest percentage of pure whites was found in

the northern states of Amazonas and Piauhý, to which European immigration has been practically nil.

The mestizo population, as might naturally be expected, is much the smallest in the four southern states where the pure whites so largely predominate, Santa Catharina, with 85 per cent whites, having only 7 per cent mestizos. But for the rest of Brazil, outside of these four states, the mestizo population is never less than one-fifth, and in some states, as in Sergipe and Bahia, it runs to almost one-half, the average being about 35 per cent.

From the facts so far considered it is apparent how complex is the racial make-up of the Brazilian people, due to the constituent elements of three fundamentally different races, the European, the Indian, and the Negro. Not only are these three elements present in pure form, but also in an infinite variety of mixtures, in the *mamelucos* or descendants of white and Indian parentage, the mulattoes or descendants of white and negro parentage, and even *zambos*, the descendants of mixed Indian and negro parentage. Moreover, the white element consists of representatives of many different European peoples, quite dissimilar. The Indian aborigines, also, showed marked physical, mental, and moral divergences, while the negroes, though commonly grouped generically as "blacks," sprang from African races as different among themselves in their characteristics as were the Indians and the Europeans. Added to all these elements of divergence in the racial composition of the people as a whole is the added fact brought out by the table shown above that the proportion of these elements varies enormously for the different parts of Brazil.

From all of these considerations it can readily be

seen that no such thing as a "typical Brazilian" exists. Though the influence of heredity as well as of climate would tend to make the brunette type with dark hair, dark eyes, and swarthy complexion the prevailing type physically, that is about as far as it would be safe to generalize, and even that generalization suffers many exceptions. Brazilian nationality, even more than American nationality, therefore, is a question not of race but of psychology. Community of language, of religion, of traditions, and of ideals, not of race, furnish the real basis of Brazilian nationality. That such a basis can be quite as solid for the creation and endurance of a people and a state, is of course convincingly evidenced by modern Switzerland, which, to a heterogeneity of race, adds also heterogeneity of language and religion.

Distribution

According to the census of 1920, the population of Brazil in that year numbered 30,635,605. Taking as the official estimate of the area of Brazil the figure 8,511,189 square kilometers, or 3,286,173 square miles, the density of population for the country as a whole was 3.6 per square kilometer, or 9.3 per square mile, or less than a third of that of the United States of America. But this average density of population, which would give a true picture only if the population were evenly distributed over the country as a whole, is very far from giving a correct idea of the actual distribution of population.

The following table, showing the population by states with their areas and density of population, will serve to show how unevenly this total population is distributed over the area of Brazil.

<i>State</i>	<i>Population</i>	<i>Area in sq. kms.</i>	<i>Density per sq. km.</i>	<i>Density per sq. m.</i>
Alagoas	978,748	28,571	34.3	89.1
Amazonas	363,166	1,825,997	0.2	0.5
Bahia	3,334,465	529,379	6.3	16.4
Ceará	1,319,228	148,591	8.9	23.1
Espirito Santo	457,328	44,684	10.2	26.5
Federal District	1,157,873	1,167	98.8	256.9
Goyaz	511,919	660,193	0.8	2.1
Maranhão	874,337	346,217	2.5	7.5
Matto Grosso	246,612	1,477,041	0.2	0.5
Minas Geraes	5,888,174	593,810	9.9	25.7
Pará	983,507	1,362,966	0.7	1.8
Parahyba	961,106	55,920	17.2	44.7
Paraná	685,711	199,897	3.4	8.8
Pernambuco	2,154,835	99,254	21.7	76.4
Piauhý	609,003	245,582	2.5	6.5
Rio de Janeiro.....	1,559,371	42,404	36.8	95.7
Rio Grande do Norte....	537,135	52,411	10.2	26.5
Rio Grande do Sul.....	2,182,713	285,289	7.6	19.8
Santa Catharina	668,743	94,998	7.0	18.2
São Paulo	4,592,188	247,239	18.6	48.4
Sergipe	477,064	21,552	22.1	57.5
Territory of Acre.....	92,379	148,027	0.6	1.6
Totals	30,635,605	8,511,189		

From this table it appears at once that the three great states of Amazonas, Matto Grosso, and Pará, comprising well over half of the total area of the country, contain only about one-twentieth of the total population, the average density for these three states being less than 0.8 of a person per square mile. On the other hand, considerably over half of the total population is concentrated in the central group of eastern states from Bahia to São Paulo inclusive, comprising besides the two states mentioned, the states of Espirito Santo, Rio de Janeiro, and the Federal District on the coast, and the state of Minas Geraes just to the west of those three narrow sea-board states. Yet these six states contain less than one-fifth of the total area of the country.

Or to put it in another way, there are three states

that do not fall into the Atlantic seaboard group, not counting Minas Geraes, which is separated from the Atlantic only by the distance across the narrow areas of southern Bahia, or across Espirito Santo or Rio de Janeiro. These three states are Amazonas, Matto Grosso, and Goyaz. Their combined area falls but a little short of being half of the area of the country, while their combined population is not as great as that of the Federal District alone. Minas Geraes and São Paulo alone have together over a third of the total population of the country within their borders, which cover, however, less than one-tenth of the area of the entire country.

The outstanding feature of the distribution of population in Brazil, therefore, is that today, more than four centuries after the discovery and first settlement of the country, a relatively narrow strip of coastal plain and of the eastern portion of the great central plateau contains the vast bulk of the total population of the country. Were the whole of the country as thickly populated as the state of Rio de Janeiro, a situation readily possible so far as climatic conditions and natural resources of the country are concerned, the total population of Brazil would reach the staggering total of over 400,000,000.

If the concentration of population in the eastern strip of Brazil is striking, no less so is the concentration in the southern portion as compared with the equatorial portion. The parallel of 10° south latitude is generally taken as marking the dividing line between the tropical and sub-tropical zones of Brazil, particularly as the territory below that line is almost wholly on the great Brazilian plateau. It so happens, also, that this line marks off fairly accurately the terri-

tory of the nine northernmost states of Brazil and the Territory of Acre, including a little, it is true, of northern Matto Grosso, Goyaz and Bahia. Now these nine northern states and the Territory of Acre comprise over half of the total area of Brazil. But their combined populations are less than 30 per cent of the total, so that more than 70 per cent of the population of Brazil lives in the southern half of the country.

The farther south we go, the more striking does this concentration become. The four southernmost states of São Paulo, Paraná, Santa Catharina, and Rio Grande do Sul, the three last-named lying wholly below the Tropic of Capricorn and the first-named by reason of its elevation lying in the climatic temperate zone, comprise less than one-tenth of the total area of Brazil. Yet their combined populations of over 8,000,000 represent more than a fourth of the total number of inhabitants.

And this gravitation to the south has been particularly emphasized during the last century. In 1823, at the beginning of the empire, São Paulo ranked fifth in population among the provinces and Rio Grande do Sul ranked eighth, while Paraná was still part of São Paulo and Santa Catharina had only 50,000 inhabitants, the smallest in population of all the provinces with the exception of Matto Grosso. Today São Paulo ranks second, and if Paraná were still counted as part of it, would be but a few hundred thousand behind Minas Geraes, while Rio Grande do Sul has advanced to fourth place and Santa Catharina has outdistanced six of the provinces that were more populous a hundred years ago.

On the other hand, while the concentration of pop-

ulation in the eastern belt has been characteristic of Brazil from the earliest days, and was, of course, even more pronounced in colonial days than at present, the most recent statistics show that the great western states of Goyaz and Matto Grosso have been slightly more than holding their own in relation to the general increase of population in the last century. In the thirty years from 1890 to 1920, however, that is, during the republican federal régime, the annual geometrical ratio of increase has been 2.85 and 3.68 for those two states as compared with 2.49 for the country as a whole, showing a decided though gradual westward movement in population.

Rate of Increase

In studying the rate of increase of the population of Brazil we are confronted at the outset with the disturbing fact that up until the census of 1920 there never had been made a really careful enumeration of the population of the country worthy of the name of a real census. What went before in the way of population statistics was, therefore, little more than estimates, some official, some semi-official, and some simply the guesses of travelers or other private individuals. But uncertain as these estimates undoubtedly were, they are of interest because furnishing the only means we have of studying the rate of increase of population in Brazil.

The conditions of the country make the taking of a comprehensive census in Brazil a matter of peculiar difficulty. The immense stretches of territory, the almost insuperable difficulty of travel, both of which factors made a complete enumeration very expensive, combined with other elements to defeat the attempts

that were made from earliest times to secure some enumeration. After the establishment of the Brazilian bishoprics the bishops were supposed to send annual statements of the population to Lisbon. But they had to depend upon the reports of the local priests, who took into account only the communicants of the church, omitting mention of the children and non-communicants. Moreover, the vicars as well as the governors were interested in keeping down the population returns for fear that a true statement of the numbers might lead to a diminution of the territory under their jurisdiction. Furthermore, the population itself saw in the attempted enumerations a device of the government to secure lists for military conscription, and consequently they resorted to every means to avoid being enumerated. As late as 1852, when the Viscount of Olinda attempted to secure a comprehensive census and had the civil register instituted for that purpose, the populace decried the enactment as a "law of captivity" and protested so vigorously that the attempt had to be abandoned. Even in this last census of 1920 this attitude of suspicion on the part of the ignorant masses made the work of enumeration extremely difficult.

Mention has already been made of the earliest estimate of population in colonial times, that of Father Anchieta, who calculated the population in 1583 at 57,000, of whom 25,000 were whites. Then follows a long interval of almost two centuries in which not even estimates worthy of mention were made as to the population of the country. In 1776, the year of North American independence, the population of Brazil was estimated by the Abbot Correa da Serra at 1,900,000. As his figures were probably based on the

financial accounts sent by the clergy to Lisbon, they would exclude children under seven years of age, and were, therefore, considerably too low. In 1797 the court at Lisbon ordered the governors of the captaincies to proceed with an enumeration, enlisting the aid of the civil and ecclesiastical magistrates. But either these orders were not executed by the governors, or else the results of their reports were never published. But estimates of the population of Brazil at the close of the eighteenth century give 3,000,000 as the most probable figure, a population already larger than that of the mother country.

Upon the arrival of Dom João VI in Brazil in 1808 an order for an enumeration of the population was almost immediately given, and was executed by the minister of war, Rodrigo de Souza Coutinho, later Count of Linhares. The details of this enumeration by provinces were not published, but the total given was 4,000,000. Though this figure is supported by no detailed information, and is offset by an anonymous study later published giving statistics for each province, and totaling only 2,419,406, it is supported by other evidence as being probably very nearly correct. The scientist von Humboldt gave exactly the figure 4,000,000 in his estimate for 1810, and a careful estimate by Velloso de Oliveira, made for ecclesiastical purposes, gave a total for the year 1819, of 4,396,132, including 800,000 uncivilized Indians, a figure that was clearly conjectural so far as that feature was concerned. A later statistician, Joaquim Norberto de Souza e Silva, writing in 1870, pronounces this estimate of Velloso de Oliveira for the year 1819 as the first real census of Brazil, by reason of its approximation to the truth, by reason of the care used in its execution, and

the faith that may be reposed therein. The returns in question were published with relation to each of the seven archbishoprics then existing, and for purposes of comparison the commentator distributes the returns among the units that later constituted the provinces of the empire.

This table, as being the most authentic available for the entire three centuries of colonial existence, is reproduced herewith, classified according to the free and slave elements.

POPULATION OF BRAZIL IN 1819

<i>Provinces as Existing in 1870</i>	<i>Free Population</i>	<i>Slaves</i>	<i>Total</i>
Alagoas	42,879	69,094	111,973
Amazonas	13,310	6,040	19,350
Bahia	330,649	147,263	477,912
Ceará	145,731	55,439	201,170
Espírito Santo	52,573	20,272	72,845
Goyaz	36,368	26,800	63,168
Maranhão	66,668	133,332	200,000
Matto Grosso	23,216	14,180	37,396
Minas Geraes	463,342	168,543	631,885
Pará	90,901	33,000	123,901
Parahyba	79,725	16,723	96,448
Paraná	49,751	10,191	59,942
Pernambuco	270,832	97,633	368,465
Piauí	48,821	12,405	61,226
Rio de Janeiro and Capital....	363,940	146,060	510,000
Rio Grande do Norte.....	61,812	9,109	70,921
Rio Grande do Sul.....	63,927	28,253	92,180
Santa Catharina	34,859	9,172	44,031
São Paulo	160,656	77,667	238,323
Sergipe	88,783	26,213	114,996
Totals	2,488,743	1,107,389	3,596,132
Uncivilized Indians			800,000
Grand Total			4,396,132

The period of independence under the empire was hardly more fruitful, so far as serious attempts at enumeration were concerned, than the colonial period. It is true that a number of laws and decrees were

passed in that period looking toward this end, but their actual execution was for one reason or another always defeated. Such were the decrees of 1823 and 1826. In 1829 a statistical commission was decreed, but it went out of existence in 1834 without having accomplished anything worthy of note. New laws and decrees were passed in 1842 and 1846 looking towards an enumeration, but likewise failed of execution, as did similar measures in 1850 and 1851, which last-named were, as has been mentioned, the cause of serious outbreaks on the part of the negro population in the northeastern states, who had been led to believe that the proposed census envisaged their enslavement. Not until 1854 were figures published that were officially collected and compiled. These figures, made public in 1856, gave the total population of Brazil as 7,677,800.

For the intervening years between 1819 and 1854 we are again thrown back upon unofficial estimates. Among these may be mentioned especially that of Casado Giraldes, who gave the figure 5,000,000 for the year 1825, and of Malte-Brun, who gave 5,340,000 inhabitants for the year 1830, distinguished as 1,347,000 whites, 2,017,000 blacks, 1,748,000 mestizos, and 228,000 Indians. For the year 1850 the estimates of Candido Baptista de Oliveira reckoned 5,520,000 free inhabitants, and 2,500,000 slaves, or 8,000,000 total.

In the Paris World's Fair of 1867 the official statistics regarding the population of Brazil gave a total of 11,780,000, composed of 9,880,000 free inhabitants, 1,400,000 slaves, and 500,000 uncivilized Indians, but these figures were not based on any new enumeration and, like most exposition figures, seem to have been too optimistic. For when the first official attempt at

a general census along scientific lines was made in 1872, by virtue of a decree of 1870 and a law of 1871 creating a General Statistical Bureau (*Directoria Geral de Estatistica*), the final figures gave a total for that year of only 10,112,061.

This census of 1872, though still far from being as exhaustive and complete as might have been desired, came so much nearer to attaining the desired end that it is commonly spoken of as the first general census, and its results have been officially used for bases of comparison. It is, therefore, worth reproducing in detail later on in comparison with the census returns of 1890, 1900, and 1920. Here it will be sufficient to point out that the number of slaves enumerated in that year was just a trifle over 1,500,000, and that the excess of males over females was calculated at 337,041.

Unfortunately the relative success of the general census of 1872 did not prompt the government to continue and perfect the work so well begun, by periodic enumerations. Even the Census Bureau itself was abolished in 1879, and the closing years of the monarchy witnessed a return to the policy of indifference toward complete and accurate census work. But one of the first acts of the provisional government after the establishment of the federal republic was the re-establishment of the Statistical Bureau and the ordering of a new census. The taking of the census took place in the year 1890 itself, but the count, compilation, and publication of the returns were delayed through a variety of causes until 1900, the year in which, according to the provisions of the republican constitution, a second decennial census should be taken.

The final results of the general census of 1890 gave

as the population of the entire country, 14,333,915, an increase of approximately 42 per cent in the eighteen years since 1872. The returns for that year, which will be given by states in the comparative tables at the end of this section, still showed an excess of males over females, though not so pronounced as in 1872, being but 141,949.

In 1900 another decennial census was undertaken in accordance with the constitutional precept and in conformity with the recommendations of the International Statistical Institute of Berne in 1895. The work was begun on December 31, 1900, but when the results for the city of Rio de Janeiro were published on January 29, 1901, they aroused such a storm of protest as to cause the cancellation of the figures for the Federal District and to threaten the continuation of the work of compilation as a whole. They were finally concluded in 1908 and gave as the total population for the country, 17,318,556, or an increase in ten years of about 21 per cent.

The third decennial census, which should have been taken in 1910, was doomed to complete shipwreck owing to the disturbed political conditions of the country in that year of bitter controversy over the presidential election. The appropriations for the census were completely cut off, and the only figures available for that year are the estimates of the Statistical Office based on rate of growth and other known factors derivable from the earlier enumerations and other statistical material. These estimates, which are frankly recognized as such and never given as census figures, calculated the population of Brazil for 1910 at 23,414,177. These figures, whether actually correct or not, fit into their proper place in relation to the census

of 1900 and the most recent census of 1920. They calculate the increase in the ten-year period from 1900 to 1910 at about 35 per cent.

The results of the 1920 census compared with the results of the census of 1900 showed an increase in the twenty-year period mentioned of 76 per cent, and compared with the estimates for 1910 an increase during the ten-year period after 1910 of 31 per cent. Combining in a comparative table the figures by states for the enumerations of 1872, 1890, 1900, and 1920, as well as the official estimates for 1910, we have (on page 278) a summary view of the rate of increase of population for Brazil as a whole and for its component parts, for a period of approximately half a century.

Aside from the distribution of population by geographical regions and by political subdivisions one other matter is of interest in relation to distribution, and that is the distribution as between urban and rural areas. Unfortunately, complete information on this important point is not yet available, though the fact that Brazil is overwhelmingly agricultural in its pursuits, rather than industrial, would itself point to the oft-noted fact that the population is chiefly rural.

The situation in this regard is faithfully reflected in the relatively small number of cities of the first class. Only one city in the country had attained at the last census a population of a million, and that was the capital, Rio de Janeiro. But it must be noted in that connection that the population usually given for Rio de Janeiro, viz., 1,157,873, refers to the entire Federal District. The population of the urban center known as the city of Rio de Janeiro did not quite attain at that time the figure 800,000.

After the federal capital, though a considerable

POPULATION OF BRAZIL BY STATES, 1872-1920

<i>States</i>	1872	1890	1900	1910	1920
Alagoas	348,009	511,440	649,273	814,060	978,748
Amazonas	57,610	147,915	249,756	358,695	363,166
Bahia	1,379,616	1,919,802	2,117,956	2,631,989	3,334,465
Ceará	721,686	805,687	849,127	1,119,489	1,319,228
Espírito Santo	82,137	135,997	209,783	340,805	457,328
Federal District	274,972	522,651	691,565	870,475	1,157,873
Goyaz	160,395	227,572	255,284	407,405	511,919
Maranhão	360,640	430,854	499,308	657,453	874,337
Matto Grosso	60,417	92,827	118,025	185,882	246,612
Minas Geraes	2,102,689	3,184,099	3,594,471	4,479,689	5,888,174
Pará	275,237	328,455	445,356	783,845	983,507
Parahyba	376,226	457,232	490,784	604,985	961,106
Paraná	126,722	249,491	327,136	520,688	685,711
Pernambuco	841,539	1,030,224	1,178,150	1,570,183	2,154,835
Piauhý	211,822	267,609	334,328	428,216	609,003
Rio de Janeiro	819,604	876,884	926,035	1,266,481	1,559,371
Rio Grande do Norte	233,979	268,273	274,317	398,644	537,135
Rio Grande do Sul	446,982	897,455	1,149,070	1,594,439	2,182,713
Santa Catharina	159,802	283,769	320,289	441,309	668,743
São Paulo	837,354	1,384,753	2,282,279	3,455,030	4,592,188
Sergipe	234,643	310,926	356,264	409,931	477,064
Territory of Acre				74,484	92,379
Totals	10,112,061	14,333,915	17,318,556	23,414,177	30,635,605

ways behind, comes São Paulo, the only other city in Brazil that has as many as half a million people. There are three others with populations of over 200,000, São Salvador, capital of Bahia, 283,422; Recife, capital of Pernambuco, 238,843; and Belém, capital of Pará, 236,402, while one other nearly reaches the 200,000 class, viz., Porto Alegre, capital of Rio Grande do Sul, 179,263. But these six cities are the only ones in Brazil that fall in the class of major cities having a population of 100,000 or more. By way of comparison with the United States of America, which in 1920 for the first time showed an excess of urban over rural population, Brazil with 30,000,000 had in that year, as was said, six cities with over 100,000 population, while the United States, with something over three times the total population, had 68 cities in that class, or eleven times as many.

It is the more difficult to get at the percentage of urban population in Brazil, because the statistics readily available refer to *municípios* rather than to cities as we understand the term, and *municípios* include large purely rural areas as well as the urban centers that may be included within them. From the point of view of geographical extent and character of content they are much more like the American county than the American city. But the information that is available substantiates the results of even casual observation that Brazil's population is characteristically rural.

Immigration

In a country like Brazil immigration has of course played a fundamental rôle, both in the character of the population of the country and in its rate of increase.

The very first settlers of Brazil were in a sense immigrants, so were all those who followed them over from Portugal, Spain and other European countries in colonial days. So also were the negroes, who were brought in by the thousands as slaves up to the middle of the 19th century, immigrants who profoundly affected both the number and the character of the population. But, as we have seen, there are no statistics available showing either the number of Portuguese or the number of negroes who during the three hundred years of colonial history were brought into Brazil, voluntarily or otherwise.

During the colonial era the immigration of other nationalities than the Portuguese was almost negligible, for the colonial policy of Portugal as well as Spain was to exclude other races and particularly other religions from their domains. But with the coming of Dom João VI to Brazil and with the opening of the ports of that country to the commerce of the world, a new era was ushered in and measures were almost at once proposed looking to the encouragement of immigration into the country. In the very year of his arrival, Dom João decreed that grants of land might be made to foreigners resident in Brazil on the same terms as to Brazilians.

In the year 1818 the first official attempt at the founding of colonies of foreign immigrants occurred. In execution of that plan there arrived early in 1820 a group of 1,682 Swiss to found the colony of Novo Friburgo some 70 miles northeast of the capital and some 3,000 feet high in the coastal range of the state of Rio de Janeiro. This initial attempt proved successful in every way and would undoubtedly have been followed up by other similar undertakings had not the

all-absorbing events leading to the declaration of Brazilian independence and the establishment of the empire in 1822 crowded everything else into the background. There is no record of any immigration of any kind for the years 1821-23, though doubtless there were many arrivals among the higher classes to the new empire. The next attempt was the founding in 1824 of the German colony of São Leopoldo in Rio Grande do Sul. In the years 1824-1829, inclusive, the records show a total of 7,423 immigrants or an average of over 1,200 a year. Some 2,000 of these earliest immigrants were Germans, the forerunners of that stream of German immigration which from 1850 on continued in an uninterrupted though relatively slight flow.

Immigration, which attained over 2,400 in the year 1829, seems to have come to a complete stop the next year, when the disturbances that led to the abdication of Dom Pedro I were already coming to a head. For the same reason the troubled first years of the regency, up until 1835, recorded no immigration. But in 1836 more than 1,000 immigrants were again recorded, and thereafter there was but one year in which no immigration was recorded. The numbers that came in thereafter fluctuated greatly from year to year, due to varying political and economic conditions, but in general showed a steady upward trend clear to the early years of the republic, which registered the high-water mark of immigration.

The total number of immigrants registered in the hundred years from 1820, when the first foreign colony was founded, to 1920 was 3,648,382. Of this total more than a third, viz., 1,388,881, were Italians, and nearly a third, viz., 1,055,154, were Portuguese, while

the third largest group were the Spaniards, who furnished a total of 510,514. In other words, the three Latin countries of southern Europe furnished during the first century of Brazil's independence more than 80 per cent of all the immigrants. The total German immigration during the hundred years under consideration was only 131,441, though in the years immediately preceding the World War it was steadily rising and in 1913 attained 8,000, dropping down, of course, to almost nil during the five years 1915-1919. Next to the Germans, the largest single national group represented in the immigration of the century was the Russians, with a total of 105,470, also cut off suddenly by the war and its aftermath. The Austrians came next with a total of 80,059, likewise almost discontinued during the war.

Curiously enough, the next largest racial group represented among the immigrants to Brazil since 1820 are the Turks, that term being used in a political sense to designate all immigrants from the Turkish State, irrespective of race. But while the total immigrants of this class amounted only to some 58,973, they have all come in the last 25 years, for prior to 1897 there was virtually no immigration from Turkey.

France is represented by 30,503 in the total, England by 19,456, and Switzerland by 11,780. The Nordic immigration, even including the Germans, has, therefore, been almost negligible, as regards numbers. Moreover, it has settled largely in the southernmost states in colonies and has merged but little into the general population.

On the other hand, the Italian, Portuguese, and Spanish immigration, being closely allied in race, religion, language, and habits to the Brazilian popula-

tion, merges readily into the general whole. Though the proportion of naturalization among the immigrants is very low, the children of these immigrants born in Brazil become Brazilian citizens by operation of the constitution and are scarcely distinguishable from the descendants of Brazilian parents.

It is worthy of remark that, whereas in the years from 1820 to 1907 the Italian immigrants were twice as numerous as the Portuguese and three times as numerous as the Spaniards, the ratio was completely altered in the years from 1908 to 1920, during which the Portuguese led with 420,369, followed by the Spaniards with 221,868, with the Italians in third place with 175,714. The year 1920, which represented the first approach to a return to pre-war conditions in the matter of immigration, witnessed the arrival of 33,883 Portuguese, 10,005 Italians, and 9,136 Spaniards, out of a total immigration for that year of 71,027.

The Italians and the Spaniards in considerable part represent agricultural laborers, who are so badly needed on the coffee plantations. The Portuguese, on the other hand, tend more to congregate in the cities and, while their community of race and language with the Brazilians make them readily assimilable, they are not as valuable from an economic standpoint as are the agricultural immigrants.

Beginning with the reign of Dom Pedro II, particularly with 1850, the imperial government devoted considerable attention to the stimulation of immigration. With the establishment of the federal republic in 1889, however, the unoccupied public lands passed to the states, and the stimulation of immigration became primarily a matter for the states, with, however, a concurrent power in the federal government. Some

of the states, notably São Paulo, devoted a good deal of energy to the problem of securing the necessary agricultural laborers by means of free transportation and allotment of lands, but others did little or nothing. During the presidency of Affonso Penna, therefore, 1906-1909, the federal government again began taking an active part in the stimulation of immigration. The Department of Agriculture, created as a separate department of the national government in 1909, was specifically charged with the function of the settlement of the soil (*Serviço de Povoamento do Sôlo*), and beginning in 1907 the federal government established no less than 20 agricultural colonies.

Of these 20 agricultural centers established by the federal government, 10 were located in the single state of Paraná, 3 in Santa Catharina, and 2 each in São Paulo, Minas Geraes, and Rio de Janeiro, while one was established in Espirito Santo. Since 1920 this work has been still further extended by the federal government, while in all the states from Minas Geraes south the state governments, railroads, and private colonization companies have added more than twice as many more agricultural colonies. In 1911 the Ministry of Agriculture issued comprehensive regulations relating to the immigration service, and the recently established National Labor Bureau provides a still further aid in this direction as well as in the matter of industrial laborers.

Profound as has been the rôle played by immigration in the increase and character of the Brazilian population, especially since the establishment of the federal republic, its potential rôle in the future development of Brazil is even greater. From 1872 to 1920, during which time the population of the coun-

try more than tripled, some 3,300,000 immigrants entered Brazil. For the next fifty years Brazil could advantageously use 100,000 immigrants each year without any danger of adding too many foreigners to her population. But if these additions are to do the most good to the nation as a whole, they should be distributed more evenly over the entire surface of the country, and not so completely concentrated in the southern states.

In the climate of the southern states, it is true, the Italians, Spaniards, and Portuguese encounter conditions quite similar to those of their native lands, and for that reason they are specially attracted to those regions. But throughout most of the vast area of the great Brazilian plateau, and particularly in the great expanses of the western states, climatic conditions are by no means unsuitable to the peoples of southern Europe. If the country were opened up by the construction of adequate transportation facilities those regions alone would be able to support an agricultural population of many millions, to say nothing of the industrial possibilities presented by the water power facilities already noted.

Nordic immigration will probably never come to Brazil in great numbers, except in the southernmost states. For while the climate of sub-tropical and tropical Brazil is by no means characterized by excessive heat, nor even for the most part by excessive humidity, and the dangers to health from yellow fever, tropical fever, hook-worm, malaria, and water-borne diseases are quite possible of complete elimination by modern sanitary administration, the inhabitants of temperate zones as a rule find it difficult to acclimatize themselves sufficiently to feel completely at home. Suc-

cessive generations would no doubt adapt themselves to the new climatic conditions, but immigration can hardly be attracted to any appreciable extent by prospects of well-being that will be realized chiefly by succeeding generations. But if the time ever comes when the temperate zones of the world's surface are completely occupied, further increases of population will undoubtedly be driven to seek an outlet in the subtropical and tropical regions, and among those regions Brazil undoubtedly presents the greatest areas of inhabitable land in the world.

Birth Rates, Diseases, and Death Rates

Since the total immigration into Brazil during the half century from 1872 to 1920 amounted only to some 3,300,000 persons, while the increase in population during those years amounted to over 20,000,000 it is apparent that if none of those immigrants had died, and no emigrants had left the country during those fifty years, the population added by natural increase would still have been more than five times greater than the population added by immigration. Taking into account the large number of deaths occurring among those immigrants as well as the large numbers of persons who left Brazil during that same period, it is readily seen that the natural increase in population accounted for incomparably the largest part of this increased population.

Now the natural increase in population represents the excess of births over deaths. But although the net increase shows that the excess of birth over deaths in Brazil during the last fifty years has been extremely large, it does not tell us anything about the actual birth rate and death rates. Unfortunately, accurate

vital statistics of this nature are virtually lacking for Brazil. Only in the larger cities are reliable figures available, and in many of these even they are not above suspicion.

As regards the birth rate for the country as a whole, no figures laying the slightest claim to accuracy are available. But the following table shows the number of births recorded in twelve of the principal cities in 1920, showing in round numbers the populations of the cities proper, not counting the surrounding rural areas belonging to the same municipality. For purposes of comparison the deaths recorded are also given, and the birth and death rates per thousand.

<i>City</i>	<i>Pop.</i>	<i>Births</i>	<i>Deaths</i>	<i>Births per 1,000</i>	<i>Deaths per 1,000</i>
Manáos	40,000	755	1,272	18.9	31.8
Belém	150,000	3,011	3,903	20.7	26.0
São Luiz	40,000	1,305	1,162	32.8	20.1
Fortaleza	70,000	2,628	3,280	37.5	46.9
Recife	250,000	2,829	7,629	11.3	30.5
Maceió	50,000	1,235	2,092	24.7	41.8
Rio de Janeiro.....	1,158,000	36,236	22,154	31.3	19.1
São Paulo	500,000	20,820	10,565	41.4	21.1
Santos	90,000	3,424	2,344	38.0	26.0
Campinas	100,000	4,232	2,176	42.3	21.8
Curityba	75,000	2,752	1,187	36.7	15.8
Rio Grande do Sul...	35,000	1,400	1,113	40.0	31.8

This table shows a remarkably high birth rate in a majority of the cities reported, and it must be recalled that the figures in regard to births are very likely to be below the actual number where, as in Brazil, systematic vital statistics are rarely kept.

On the other hand, the death rate, which, owing to the formalities connected with interment, assures a much greater likelihood of adequate recording, is even more astonishingly high. In fact, in all the cities

lying north of Rio de Janeiro, as appears from the above table, the death rate is greater than the birth rate, being in several instances almost the double.

This high death rate is due primarily to an exceedingly high infant mortality. The number of still-born children alone is a very important item. In the city of Recife, capital of Pernambuco, the number of still births was reported for 1920 as high as 29 per cent of all births. In most of the cities reported for 1920 the deaths of infants under one year of age ran well over 25 per cent of all deaths recorded, and in some instances it mounted to 35 per cent. Now infant mortality, as is well known, is almost wholly preventable, provided an efficient sanitary and public health service is functioning. This enormous infant mortality, therefore, is an eloquent testimonial to the inadequacy of that service in most of the larger cities of the country.

The most serious diseases that afflict the population of Brazil are likewise preventable by an efficient public health service. Yellow fever, tuberculosis, venereal diseases, malaria, and hook-worm are the great plagues of Brazil, and all of them are capable of being eradicated if only sufficient attention and resources be devoted to that end.

But the police power, including the preservation of public health, being in Brazil, as in the United States of America, a function left to the states, the national government has not been in a position to attack the problem as effectively as might be wished. What can be accomplished is strikingly illustrated in the case of the capital, Rio de Janeiro, where the federal government has taken over in large measure the administration of the public health service. There the death

rate per thousand, which in the middle of the last century frequently attained the almost incredible figure of 50 or more, has now been reduced to around 19, making it one of the healthiest of the large cities of the world, as reflected by the death rate.

The individual states, many of them still financially crippled, have as a rule done practically nothing with the public health problem until a few years ago. There are some exceptions, of course, notably São Paulo, which has evidenced a very progressive spirit, as shown by the steady reduction in the death rate of the capital and other cities of the state. But within the last few years a most encouraging development has taken place. The federal government, with a re-organized national Department of Public Health, has begun an active program of coöperation with a majority of the states which bids fair to inaugurate a new era in sanitation and public health in that country. In that work the federal government has invited and received the inestimable aid of the International Health Board of the Rockefeller Foundation, which at the present time is still active through the "Comissão Rockefeller" in Brazil.

Space does not permit of even a summary of the accomplishments already recorded. It must suffice to say that through the work of the Commission, backed by the aid and support of the federal government, the individual states have in a number of instances been brought to take not only an active interest but also an active part in the general public health work. The experts of the Commission have shown the states and the communities how the great problems of rural sanitation and public health should be approached and have given actual demonstrations of what can be ac-

complished. Public and private interest has been enormously stimulated and comprehensive programs of improvement have been inaugurated. Not merely will the death rate of the country as a whole be greatly reduced with the systematic execution of the program initiated, accomplishing a tremendous saving of manpower for a country so badly in need of population as Brazil, but also the general level of well-being and efficiency of the population will be greatly raised by the eradication of such afflictions as malaria and hookworm, which do more harm in their effect on the living than in the number of deaths caused by them.

Scientific investigation has shown more and more that the traditional insalubrity of tropical and semi-tropical areas is in no way a direct result of the climate. So-called tropical diseases are due to the neglect of well-established sanitary precautions and are eradicable. Witness simply the city of Rio de Janeiro, which has been converted by modern public health methods from a pest-hole into as healthful a city as any in the world. With the public health protection that today exists in the Brazilian capital, no more delightful place of residence could be imagined, though it lies on the Tropic of Capricorn.

CHAPTER IX

AGRICULTURE

It is a commonplace statement that Brazil is chiefly an agricultural country, and that statement is true today, as it has been true from the earliest times, in spite of the remarkable growth of manufacturing industries, especially during the twentieth century. But how true this statement is can only be appreciated by an examination, however rapid, of the chief products cultivated there.

The aborigines who inhabited the coastal plains, great river basins, and extensive plateaus of Brazil, when the European first came to that region at the beginning of the sixteenth century, engaged in a rude kind of agriculture in addition to their activities of hunting and fishing. And some of the products which they cultivated were destined to assume an important place in the crops raised by the colonists. Among these native products appropriated by the Europeans who settled in Brazil may be mentioned especially manioc, maize or Indian corn, sweet potatoes, tobacco, cocoa, and cotton.

Though the impelling motive in the early colonization of Brazil, as of the Americas generally, was the search for mineral wealth, the failure to find the coveted metals and precious stones in Brazil for nearly two hundred years after the discovery of the country, inevitably led to the development of agriculture as the

principal activity of the country, in contrast with the early history of some of the Spanish-American colonies. Not only were the native alimentary plants mentioned above cultivated by the early colonists, but as soon as real settlement began, other plants with which they were familiar were brought over from Portugal and her possessions, as well as livestock of all kinds.

For the colonial period, as well as for the period of the empire, and for a good part of the republican period also, there are no reliable figures available as to the agricultural products of Brazil. Little or no attention was paid to the basic crops which furnished the bulk of the food supplies, such statistics as were gathered relating chiefly to the products which figured among the exports of the country. This is well illustrated by the cases of wheat and sugar cane. These two crops were both introduced into Brazil by the earliest colonists and soon attained considerable importance. But whereas wheat was never cultivated to the extent that it figured among the articles of export in colonial times, sugar almost immediately jumped into prominence as the principal article of export of the colony during the sixteenth century, and figures are available showing the amount exported at various times during the colonial period.

Now export statistics are of great importance in showing the economic resources of a country, and from that point of view they will be considered in the chapter dealing with foreign commerce. But as they indicate merely the surplus of a given product over and above what is needed for domestic consumption, they do not of themselves indicate either the total amount of production of a given commodity, or the relative

importance of that product in the total production of the country. Conclusions drawn, as they frequently are, from the export statistics, regarding the economic activities of a country, are, therefore, likely to be very misleading. To take a single illustration. Coffee, as will be seen later, is today the chief article of export of Brazil, representing in recent years an export value greater than that of all other products put together. Indian corn, on the other hand, practically does not figure among exports at all. And yet the production of Indian corn is more than five times as great in weight as is that of coffee, occupies half again as much area as the latter, and is but little behind coffee in the money value of the whole crop.

Likewise statistics of imports, though of great interest and importance in various directions, throw little light on the national production in the articles imported. For in the case of certain imports it may be true that there is no national production of the articles in question at all, whereas in the case of others, figuring even more largely among the import statistics, the national production may be considerable, though not sufficient to satisfy the national demand. Illustrations of two kinds of agricultural products presenting the above characteristics are hemp and wheat, the former practically negligible as a national product, while the latter looms large among the imports in spite of the fact that the national production of wheat amounts to some 150,000 tons a year.

If in this summary of the development of agriculture in Brazil, therefore, special mention is made of the products that successively assumed importance as exports, it is not because they were necessarily the most important in the internal economy of the country, but

only because information on that phase of the agricultural development of the country is the most complete, if not indeed in many respects the only available information.

Sugar, then, which was cultivated all along the Atlantic seaboard in early colonial days and provided the chief source of wealth for the plantation owners, and the cultivation of which first necessitated the importation of African slaves, saw itself crowded in the seventeenth century by tobacco as a lucrative product for export. Then cotton became an important crop for export, especially stimulated by the Civil War in the United States after the middle of the nineteenth century. But with the second half of the nineteenth century began that phenomenal growth of the coffee industry, which soon outstripped all other products of the country put together, whether mineral, agricultural, or industrial, as an article of export. These developments, occurring in successive periods, and intensified in different portions of the country, played a fundamental rôle not merely in the composition of the national agricultural wealth as a whole, but also in its distribution.

Ranking the chief agricultural products of Brazil in the descending order of their market value, which in the year 1920-1921 was estimated by the Department of Agriculture as totaling 4,284,684:189\$000, or, counting four milreis to the dollar, as over a billion dollars, they appear as follows:

Coffee,	1,025,993	contos of reis, or	\$256,498,000
Indian Corn,	949,219	" " " "	237,305,000
Cotton,	485,992	" " " "	121,448,000
Sugar,	417,310	" " " "	104,328,000
Rice,	319,132	" " " "	79,786,000
Beans,	232,556	" " " "	58,139,000
Maté,	156,000	" " " "	39,000,000

Tobacco,	129,950	contos	of	reis,	or	\$32,488,000
Manioc,	114,461	"	"	"	"	28,615,000
Potatoes,	76,341	"	"	"	"	19,085,000
Wheat,	67,922	"	"	"	"	16,980,000
Cocoa,	61,053	"	"	"	"	15,263,000
Alfalfa,	59,805	"	"	"	"	13,951,000

A brief description of the principal crops, showing the areas of cultivation, the methods, the cost, and the yield, will serve to show the conditions under which Brazilian agriculture is being carried on.

Coffee

Though coffee is the most recent of Brazilian agricultural products, it has had the most interesting history, and is not only the chief product in total value of yield, but is the backbone of the nation's export trade. By reason of that predominating position this crop has played a fundamental rôle in the finances of the country, extending its influence even into state and local politics, and appropriating the place as the typical Brazilian product.

Coffee, it seems, was first introduced into Brazil in 1730, when it was brought into the Amazon regions from French Guiana. Its cultivation spread very slowly in Brazil and the coffee plant did not appear in the more southern portion of Brazil, which was destined to become the world's greatest coffee region, until fifty years later. São Paulo did not record its first coffee plantation until about 1809, and as late as 1852 only 85 coffee plantations existed in that state, yielding a total of 50,000 sacks.

From that time on the coffee production increased by leaps and bounds, the greatest increases in planting and crop yield being during the early years of the republican régime. The peak was reached in the year

1906, when an unprecedented crop yielded the almost incredible quantity of 20,000,000 sacks of 132 pounds each, with a resultant coffee crisis of which something more will be said a little further on. The production varies considerably from year to year, due to climatic and labor conditions, and has fallen as low as 7,500,000 in 1919, following the unprecedented frosts of the year before which destroyed nearly a third of the plantations in São Paulo.

Taken in five-year periods from the record year of 1906, the average annual production was 14,055,000 in the first quinquennium, 13,700,000 in the second quinquennium, and 12,057,000 in the five-year period from 1916-1920. In the last years the annual production has fallen below that average, but even so Brazil furnishes from two-thirds to three-fourths of the coffee production of the world, the other principal countries of production being Colombia, Venezuela, the Dutch East Indies, Guatemala, Salvador, Mexico, Nicaragua, Costa Rica, and India, in the order named. The world's annual consumption of coffee is calculated at 20,000,000 sacks, and for the year 1922 official estimates gave 8,550,000 sacks in stock, a Brazilian crop of 11,000,000 sacks, and a crop in the other coffee producing countries of 5,500,000 sacks, giving a surplus in June, 1923, of 4,000,000 sacks over the estimated consumption.

There are some features of the coffee industry which, while of special importance in relation to the export feature, to be considered more at length later, must be emphasized at the outset in connection with this fundamental Brazilian crop. Coffee is not an annual crop like wheat or corn or potatoes, but is gathered from shrubs or trees that do not bear for three years after



Economic Map of Brazil.



being planted and do not yield appreciably until the fourth year. Hence it is impossible for the natural law of supply and demand to operate on the production of coffee. In a year of good prices and general prosperity millions of coffee trees may be planted which may yield their crop in a year of low prices, and further glut an already overcrowded market. For the same reason it is impossible to resort to rotation of crops to meet depressed markets, for land planted in coffee cannot be used for other crops without the destruction of an investment of at least four years. Hence the market price of coffee shows in the course of the years astonishing fluctuations, wholly unrelated to the cost of production, and leaving the coffee planter alternately affluent or bankrupt by reason of conditions which he is powerless to control.

On the other hand, the coffee bean being a product which is not only capable of being indefinitely stored, but even improves in quality in proper storage, it would be quite possible to stabilize the market prices to a large extent by holding back the product from the market in years of overproduction or of low prices for other reasons. But such an operation requires a large amount of liquid capital, which the planters do not possess. The brokers, therefore, who buy the coffee in at low prices and are able to finance the storage of the surplus, are the only ones to gain by the operation, unless the government itself takes a hand and helps out the planters by buying enough of the surplus crop to stabilize the market. This has been done in times past by the state of São Paulo, and more recently by the federal government itself through the instrumentality of the Institute of Permanent Defense of Coffee. This experiment is known

in Brazil as the "valorization" of coffee, and while, as might be expected, it receives the enthusiastic endorsement of the coffee growers whose products have thus been stabilized in price, it has been as violently attacked by other interests in Brazil, both on general economic grounds and because of its specific effects on the finances of the country.

The chief centers of coffee production in Brazil to-day are the states of São Paulo, Minas Geraes, Espírito Santo, and Rio de Janeiro. But São Paulo so far leads the rest of Brazil in this great crop that two-thirds of the entire national production normally comes from this one state alone, which in normal years, therefore, produces approximately one-half of the world's total supply.

A coffee plantation, as has been said, requires four years from the time of planting to yield its first marketable crop. In proper soil and with proper care the trees will yield well for as much as sixteen or twenty years. In poor soil and without proper cultivation the plantations will become unprofitable in a much shorter time and the old areas are abandoned for virgin soil. Hence large areas in the central states of the Atlantic seaboard are now abandoned coffee *fazendas*, some of which have never been turned to other uses. Hence also in the state of São Paulo, the coffee area has been steadily moving north and northwest away from the earlier centers that were much nearer the coast and presented, therefore, a great superiority in the matter of freight costs to the ports of shipment.

It is estimated that in the whole of Brazil there are over 5,500,000 acres planted in coffee trees. Of this total the state of São Paulo alone comprised more than 3,900,000 acres, or approximately 70 per cent, while

Minas Geraes had 914,000 acres, all located in the southern portion of that state, Rio de Janeiro, 472,000, and Espirito Santo, 420,000. With an average of 300 trees to the acre this would give a total of some 1,650,000,000 coffee trees. With an allowance of 10 per cent off for the trees under four years of age, and an average yield per tree of two pounds of coffee, the coffee production in good years, barring losses due to frosts or other unfavorable weather conditions, or shortage of labor, could easily amount at the present time to over 20,000,000 sacks of 132 pounds each.

The average or normal price at Santos for Type 7, the standard type usually quoted, has been in recent years around 30 milreis per arroba of 32 pounds, though this has shown, as was said, violent fluctuations, both above and below that figure. If 25 cents in U. S. money is taken as the normal equivalent of the milreis, though since 1922 it has been far below that figure, this would be the equivalent of about 25 cents a pound at Santos. But of this 25 cents the planter receives but a very small share. Export taxes are levied on every sack that leaves the state. Monopolistic railway freight charges eat up an unduly large proportion, and brokers' fees and commissions and other charges account for a lot more. So that even with the cost of production estimated at around 6\$500 or 7\$000 an arroba, or say 5 cents a pound, the major portion of the profit goes to the broker rather than to the planter. It was partly with a view to cutting into these middlemen's charges, particularly, however, to prevent the heavy speculation in futures, that the government at various times intervened and in 1921 established the Institute of Permanent Defense already referred to.

The soil most favorable to the coffee plant is the

red loam that is characteristic of so much of the Brazilian plateau. Almost the entire production of Brazil is of the *Coffea Arabica* variety, which thrives best in higher altitudes, whereas the *Coffea Liberica*, in some respects a hardier plant, thrives better in the coastal regions. The best plantations in Brazil are, therefore, found at an elevation of from 1,500 to 2,500 feet. But the trees are extremely susceptible to frost, a heavy frost killing not merely the fruit but the tree itself, as occurred in large districts in São Paulo in 1918.

Young plants are sprouted from selected seeds and planted in carefully prepared ground, beginning in November when the rainy season commences. The work of clearing the ground of trees and underbrush is itself an arduous and expensive labor. Then for three or four years the trees have to be carefully tended and the ground beneath them continually cultivated and kept free from weeds. After the trees begin to bear, the picking occurs in the dry season, from May to September, and the first of the new crop begins to appear on the market about June of each year.

One of the most striking features of the coffee raising industry in Brazil is the enormous extent of individual holdings. Colonel Schmidt, the "coffee king," who came to Brazil as an immigrant from Germany many years ago, is alone credited with 31 plantations averaging over 2,500 acres apiece. The famous fazenda "Guatapará," in the Ribeirão Preto district of São Paulo, contains almost 35,000 acres and a total of more than 1,800,000 trees.

The biggest problem of the coffee planter is the labor problem. Not only is labor needed for clearing



A Typical Mud Cabin in the Interior of Rio de Janeiro State.

the ground in new plantations and setting out the trees, but the young trees need continual attention during the three or four years before they bear, as well as at regular intervals after they have come to maturity. This care represents a steady outlay without any returns whatever. Then comes the picking time, when an enormous number of additional laborers are needed if a large part of the crop is not to spoil.

After the abolition of slavery the crying need was for laborers of any kind and at any price. It was this that was largely influential in prompting the federal government as well as the state governments to subsidize the immigration of agricultural laborers. In addition to free transportation the laborers had to be given houses and the right to cultivate their own plots of ground, and also to raise beans and other similar products between the rows of trees of which they took care. From 150 to 200 milreis is paid per thousand trees, which one colonist with his family can easily do. The cost of picking is extra, usually on a piece basis, as also the cost of drying and preparing for shipment. This being a seasonal occupation, prices jump in harvest time and skillful pickers with their families can earn a very good living.

Most of the coffee laborers are Italians, many of whom make the trip from Italy to Brazil each year, taking part in the coffee harvest in the months from May to August and returning to Italy in time for the summer crops there. In terms of American money the wages paid even at the height of the picking season are incredibly small, from \$1.50 to \$2.00 a day with keep, and in ordinary times from 50 to 75 cents. But that energetic immigrants, starting with nothing, can attain independence and become plantation own-

ers themselves, is witnessed by countless examples, while the remarkable story of such men as Colonel Schmidt illustrates what may happen in exceptional cases. Yet the lot of the average immigrant agricultural laborer is not an enviable one, and the great plantation owners are finding it increasingly difficult to secure the necessary labor without increasing the cost of production beyond a point where it is still profitable in view of the conditions of the world market.

Coffee is still the great money crop of Brazil. In São Paulo it became the all-absorbing concern of the population, driving out other crops such as cotton, sugar, tobacco, rice, and maize, which had attained a position of importance before the great coffee era of the nineties began. But the slump in coffee prices, due largely to overproduction, brought a realization of the economic dangers incident to a one-crop economy, and in recent years other products have been receiving increasing attention in that state. This is best illustrated by the fact that, whereas twenty years ago the export tax on coffee yielded the great bulk of the governmental revenues of the state, this source of income now accounts for less than one-fifth of the total. With the cultivation of other crops and with the growth of industries, coffee, though retaining a preëminent position, is no longer the almost exclusive concern of that state, and its economic position is being strengthened each year by the wise increase in crop diversification.

By reason of its preponderating position, coffee, concerning which a book of a thousand pages has recently been published, has merited such a relatively extensive consideration in this rapid survey of Brazilian agriculture, though many interesting features

have of necessity been omitted. The other agricultural products must, therefore, be touched upon with even greater brevity.

Indian Corn

(Maize or *milho*, as it is called in Brazil, is produced in every state of Brazil, over an area estimated at over 8,000,000 acres. But the principal regions of large production are in the southern states, Rio Grande do Sul leading with over 2,000,000 acres alone, Minas Geraes, São Paulo, and Paraná following in the order named. Owing to the fact of its very widespread cultivation in small amounts, both the total acreage planted and the total yield can only be roughly estimated, but the latter has been calculated at over 10,000,000,000 pounds, or counting 60 pounds to the bushel, a total of 167,000,000 bushels.

As has already been pointed out, the first Europeans on coming to Brazil found the aborigines engaged in a rude cultivation of this product. The forest land was cleared and burnt off, pointed sticks were used to make a small hole in the ground, and the grains of corn were dropped into these holes and covered over. This same primitive method is still used by the inhabitants in many places in the interior, and the yield is correspondingly small, in spite of the natural fertility of the soil, especially as no attention is paid to seed selection. For the whole of Brazil the average yield in good lands is estimated at around 25 bushels to the acre, varying from 16 in Piauhy to 30 in Rio Grande do Sul. But in regions where modern agricultural methods are being employed, the yield is equal to that of the richest regions in the world, the general average being kept down so low

by the large amount of primitive cultivation still practiced.

In spite of the enormous production of Indian corn in Brazil, and in spite of the ease with which it is produced for local consumption as well as for the market, there were imported in 1920 over 31,000 tons of corn and 5,625 tons of corn meal. Beginning in 1916, due to the shortage of foodstuffs, Brazil for the first time exported Indian corn, the total exports being almost 5,000 tons, jumping in 1917 to 24,000 tons. But the following year it dropped sharply and in 1919 was less than in 1916. An increase occurred again in the exports of 1920, in spite of the large importation noted above, and in 1921 the exports jumped to almost 400,000 tons, while the imports fell from 31,000 tons to practically nothing.

Brazil is the second largest corn producing country of the world today, and the possibilities of this staple crop have hardly been conceived, much less realized. The average value of the corn exported in the last five years has been about \$1.30 a bushel, reckoning the milreis at the normal exchange value of 25 cents. But the average market price in Brazil is usually not much over half of that, the average cost being reckoned at around 40 cents a bushel. Serious efforts are now being made by the Department of Agriculture of the federal government, and of the states most concerned, to improve both the quantity and the quality of this basic product, which in Brazil plays a larger rôle as a source of human food supply than with us.

Cotton

Third in importance among the crops of Brazil, from the point of view of money value, if not of extent

of acreage or volume of products, is cotton. Cotton, like maize, was a plant indigenous to Brazil and employed in various ways by the aborigines before the advent of the European. Even in early colonial days cotton attained some importance, exotic varieties being introduced from abroad. But it was not until the nineteenth century, and particularly during the period of the American Civil War and the decade following, that cotton attained its importance among the export commodities of Brazil.

The total acreage planted in cotton in Brazil is estimated at something over 800,000 acres. It is adapted to cultivation in every part of Brazil, but the most favorable conditions for its growth are in the north-eastern states where the dry season following the rains is most pronounced. Accordingly Parahyba, Pernambuco, Ceará, and Rio Grande do Norte appear among the principal cotton producing states, though all of the seaboard states from there down to São Paulo figure among the chief producers. In recent years more and more attention has been paid to this crop in the last-named state, not merely as an alternative crop to coffee, but also to supply locally the great and growing demand of the cotton mills of that state. São Paulo yields the largest crop of any state today.

Estimates as to the total production of cotton are very conflicting, and vary for the year 1920 all the way from 123,000 tons to more than double that amount. Taking 200,000 tons as a fair mean, this would be the equivalent of 800,000 bales of 500 pounds each. The only reliable figures available are those relating to exports, which showed for 1920 an exportation of about 25,000 tons of raw cotton, or about one-eighth of the total production. The remainder is used up in the hun-

dreds of spinning and weaving mills scattered throughout the country. Of the total production, the state of São Paulo, which at the beginning of this century scarcely figured among the cotton producing states, accounted for more than any other one state, and produced at least one-eighth of the total, in spite of the fact that this state is on the southern extremity of the best cotton producing area.

Unusually favored as Brazil is in the matter of soil and climatic conditions suited to the cultivation of this great crop, her output falls far below its possibilities both in quantity and quality. Lack of care in seed selection, in rejuvenation of the soil, and in cultivation of the plant is responsible for a great part of the deficiency. But quite as serious from the commercial point of view has been the failure to standardize the product. Some of the cotton produced in Brazil is as fine a long staple product as can be found anywhere in the world. A great part of the output is of the standard length best suited to the cotton mills of England and other manufacturing centers. But much of it is of distinctly inferior quality. When this cotton arrives on the market it is not graded in the manner demanded by the trade, and the natural result is that the price received is determined by the market value of the inferior product.

This is well illustrated by the fact that, in the years preceding the World War, the price received for export cotton was only a little above ten cents a pound, though in 1920, owing to world market conditions, it rose to over thirty cents, falling again in 1921 to 14 cents, due largely, however, to the decline in the value of the milreis.

In order to stimulate and improve the production

of this essential product, for with the industrial consumption of cotton in the United States steadily mounting towards the figures of production, Great Britain and other manufacturing countries of Europe must look to Brazil for an increasing proportion of their supply of raw cotton, both the state governments of Brazil and the federal government have in recent years begun taking a very substantial interest in the problem. São Paulo has led the way among the states, in this as in so many other progressive measures, and in 1920 the federal government established a special Cotton Bureau in the Department of Agriculture. In the fall of 1922 an international cotton congress was held in Rio de Janeiro, in which the British representatives showed very clearly the interest had by the English manufacturers in the stimulation of a production in Brazil which would feed the British mills. The little state of Sergipe, even more recently, has taken steps to revive the cotton production there, where for a time was located the center of Brazilian cotton production.

Sugar Cane

Of all of the agricultural products of Brazil, none finds conditions more nearly ideal for its cultivation in vast quantities than does sugar cane. Introduced by the earliest colonists from Madeira, sugar cane soon became the principal source of wealth, being exported in large quantities even in the earliest colonial days. The low regions about the coastal plain, which were first settled by the Europeans, were admirably suited to the production of this plant, and the need for laborers was met by the introduction of African slaves. Later on the competition of other

sugar-producing areas, the development of the beet-sugar industry in other parts of the world, and the rise of such export crops as tobacco and coffee in Brazil, crowded sugar cane out of its preëminent position as an article of foreign commerce, though it still retained a basic importance in the national economy.

The total area planted in sugar cane is estimated at around 1,116,765 acres. It is grown in almost every state of the Union, but the chief center of cultivation today, as it has been since earliest colonial times, is the northeastern state of Pernambuco, with the neighboring states of Alagoas, Sergipe, and Bahia next, followed by Rio de Janeiro and São Paulo.

In the years just prior to the World War, 1913 and 1914, sugar all but disappeared from among the articles of export of Brazil, being but 4,000 and 5,000 tons respectively, after having averaged around 40,000 tons a year for the preceding decade. Then came a spectacular increase in exports during the four years of the war, attaining in 1917 the maximum figure of 136,000 tons, dropping in the succeeding years, but mounting again in 1921 to more than 172,000 tons, the record figure up to that time attained. These figures include white sugar, representing about half of the total amount, Demerara, and brown sugar, and the variations in price have been quite as spectacular as the variations in quantity. The maximum value per pound was attained in 1920, when the kilogram brought on the average more than a milreis for the refined product, or at the then exchange 10 cents a pound. But in the years just before the World War the average price was only 4 cents a pound, and fluctuations of nearly 100 per cent in successive years were not uncommon. This instability of the market price is

one of the factors that has prevented not merely the normal development of the sugar-growing industry from year to year, but has even caused serious setbacks through the abandonment of formerly thriving plantations.

Added to the difficulties of marketing the crops at fairly stable prices, other obstacles have operated to damage the sugar production of Brazil. Primitive methods of cultivation, inferior qualities of varieties, and above all inefficient methods of extraction and refinement have prevented the realization of the full possibilities of this product. The average yield per acre is calculated for the whole of Brazil as about 20 tons of cane, a yield far below what is easily possible of attainment. The average annual production in recent years may be estimated at around 500,000 metric tons. The federal government has within recent years taken steps to improve the condition of the sugar production and export, similar to the measures adopted for coffee and cotton.

Rice

Among the staple food products of Brazil, rice occupies a leading position, though its cultivation on a large scale is a development of comparatively recent times. Wild rice was known to and used by the Indians before the advent of the European, but although it has been an important article of food for many years for a large part of the population, much of it was imported each year from other countries. As late as 1915 nearly 7,000 metric tons were imported and exportation was virtually nil. Five years later, in 1920, the exportation had mounted to 134,550 metric tons, and imports were practically nil. This increase

in the production of foodstuffs for export was, of course, the result of the artificial stimulus of the world shortage due to the war, but while the Brazilian product may not be able to compete in the world market with that of cheaper centers of production, a permanent result of this stimulus will probably be to make Brazil largely independent of other countries for the enormous consumption of this article within the country.

It is only within the last twenty years that really scientific production on a large scale has been attempted in Brazil. Conditions suitable for rice culture exist in virtually all of the states of Brazil, but the greatest progress has been made in the southern states, particularly in São Paulo and Rio Grande do Sul. In the latter state one of the largest rice plantations in America has been laid out along the most modern lines, covering over 15,000 acres and producing more than 400,000 sacks of rice. But of the 134,550 tons exported in 1920, 83,332 metric tons, or about 62 per cent, came through Santos, the port of São Paulo.

The total production of rice is estimated at 638,000 metric tons, the average yield for the country as a whole being about 1,500 pounds to the acre. But the effect of scientific cultivation is shown by the fact that whereas the average yield in some of the states was only two-thirds of that amount, in Rio Grande do Sul, where rice-growing has been conducted in recent years according to the most approved methods, the average yield per acre was 50 per cent greater than the average for the whole of Brazil.

The export price of rice in 1920, the great boom year of Brazilian exports as a whole, was nine cents a pound, but has fallen considerably below that since

then. Because of the very large use made of rice in Brazil as an article of steady diet, the market for this product is less subject to the violent fluctuations which mark the other major crops of Brazil, particularly those which figure to any great extent in the export columns.

Beans

Though the annual production of this crop ranks in value below that of the rice crop, in volume it exceeds the former, with which it has moreover various features in common. As an article of food, beans not only play for the great mass of the Brazilian population a rôle fully as important as rice, but they are almost always served together with rice and constitute the typical meal of the poorer classes. Moreover, until the outbreak of the World War, beans, like rice, an indispensable basic article of diet, were imported from abroad by the thousands of tons, though the country was easily able to raise more than was needed for home consumption. During the years of the war the production of beans was stimulated to such an extent that instead of importing more than 8,500 metric tons as in 1913, more than 93,500 metric tons were exported in 1917, the exports falling down again gradually to 23,000 tons in 1920 and then dropping to almost nothing in 1921, the exportation of beans for that year being but 390 tons.

Cultivated, like maize, in all parts of Brazil, for home consumption, the figures as to total acreage and total production are very difficult to estimate. The estimate of 644,444 metric tons is, therefore, only an approximation, and not even estimates are made as to the area planted to this crop.

Maté

Far behind beans as an agricultural crop, both as to acreage planted and as to volume of yield, comes maté, variously known as Brazilian or Paraguayan tea. But the money value of the crop is not so far behind that of the useful legume already considered. Some mention has already been made of this interesting native Brazilian product in discussing the flora of the country. For the *ilex paraguariensis* is an indigenous plant of Brazil as well as of the other South American countries bordering on Brazil, and the early Jesuit missionaries commented on the practice of the Indians of chewing the leaves of this plant.

Unlike most of the other important crops of Brazil, maté is not encountered in all portions of the country, but is restricted to a comparatively small area, namely the four southernmost states of Brazil, and portions of Minas Geraes and Matto Grosso immediately to the north and west of them.) It grows best in the temperate regions at an elevation of from 1,500 to 3,000 feet, and the single little state of Paraná, with its thousands of square miles covered by this plant, is the chief producer.

In a sense, the production of maté is not strictly an agricultural activity, since a large part is gathered from trees growing in a wild state without any cultivation. But the astonishing growth of the export value of maté in recent years has led to the systematic cultivation of the plant. The maté plant is a tree growing in its natural state from 10 to 20 feet high, of the holly variety, but without spinous leaves. The commercial maté is the dried product of the leaves and smaller stems, and a tree that is carefully stripped

and tended will yield a good crop again in three years. About 200 pounds can be gathered from each bush or herb, and the dried product is used for making the beverage, not unlike India tea in its manner of preparation and appearance, though quite different in taste.

Its great value lies in the purifying and stimulating effect on the human system, without any of the bad after-effects of most stimulants. As a popular drink it takes the place in the south of Brazil, as well as in Uruguay, Argentina, and Paraguay, not only of India tea but even of coffee.

Aside from its widespread use in Brazil itself, the cultivation of maté presents enormous opportunities for purposes of export. Though but little known outside of the countries in which it is found in the native state, maté is making a place for itself in foreign markets because of its excellent qualities, pleasant flavor, and relative cheapness. In 1920, the exports of this article amounted to over 90,686 metric tons, practically all of which went to Argentina, Uruguay, and Chile. The value of the export crop was calculated as about one-third of the value of the total crop, the export price in Brazil in 1920 being but a little over 5 cents a pound.

Tobacco

Tobacco is another important money crop of Brazil which was already cultivated by the aborigines upon the arrival of the first Europeans in that country. Indeed tobacco was unknown in Europe until the discovery of America, when it was found to be an article of common use among the Indians of South, Central, and North America, as far north as Virginia. Its gen-

eral use in Europe did not, however, create a large market until toward the middle of the seventeenth century, when it began to outstrip sugar as an article of export from Brazil.

The center of tobacco cultivation in Brazil was from the first the present state of Bahia, and even today that state produces much more than all of the rest of Brazil put together, though the plant is cultivated and exported from nearly all of the states, including the very southernmost state of Rio Grande do Sul.

The total area under cultivation for this crop is calculated at something over 300,000 acres, approximately half of which is in the single state of Bahia, Rio Grande do Sul, and Minas Geraes coming next with a total acreage about equal to that of Bahia. Of the total crop, estimated in 1920 at 86,632 metric tons, some 30,561 metric tons of leaf tobacco were exported in the same year, besides six and a half millions of cigars and more than half a million cigarettes. The export value of the leaf tobacco in that year was about 13 cents a pound.

Though about two-thirds of the tobacco produced in Brazil is normally consumed in the country itself, and proves a very profitable crop, lack of standard methods of cultivation, treatment, and classification for export keep the export price of Brazilian tobacco well below what is possible of attainment, and the national government as well as the governments of the principal producing states are seeking to improve the conditions of the Brazilian product in this respect. The average production per acre in good soil at present amounts to only about 275 pounds, a very low figure compared with production in the United States and other countries where scientific cultivation has been

fostered. At the same time the best qualities grown in Brazil under the most favorable conditions are comparable in yield and quality with the best leaf in the world.

Manioc

Manioc or cassava is a product which, though falling below both maté and tobacco in the money value of the crop, and far below the two just named in importance as an export crop, is nevertheless of much more economic importance, for it ranks along with rice and beans as one of the great articles of food for the mass of the population.

Here we have another agricultural product of the greatest importance in the economic life of Brazil, for which the country is indebted to the aboriginal inhabitants. The plant is cultivated solely for its root, from which the meal called *farinha de mandioca* is made. It contains a very poisonous principle which must be carefully removed by washing and roasting, and the Indians had already perfected the method for removing this poisonous substance. Though found over large areas in a wild state suitable for use, it is now cultivated throughout Brazil, though especially in the equatorial regions, as a staple food crop. It has indeed been called the "tropical bread" and for a large portion of the population of Brazil mandioca takes the place of wheat. One of its best known by-products is tapioca, prepared from the starchy matter precipitated by the poisonous juices.)

Easy to grow and quick to mature, this plant yields as high as 20 tons of roots to the acre, which may be more than doubled by the application of fertilizers. The roots yield about one-sixth of their weight in

meal, which analyzes as high as 86 per cent of starch and dextrin.

Though the production of manioc meal, *farinha de mandioca*, in Brazil is enormous, calculated at nearly 600,000 metric tons, it is almost wholly consumed within the country. Indeed, prior to the World War, it scarcely figured among the articles of export at all. Due to the world shortage of foodstuffs, however, the exports of manioc meal jumped from 4,629 metric tons in 1915, to 65,321 metric tons in 1918, of which amount France and England received 23,000 and 33,000 tons respectively. But with the close of the war the exports began to drop sharply, and fell back in 1920 to less than 9,000 tons, picking up again somewhat in the following year. At an export cost of only four and a half cents a pound, this valuable product should be able to maintain an important place as a foodstuff in the world market, in addition to providing a cheap and nutritious article for the millions of Brazilians. One of the chief difficulties in the way of expanding the production for export is the need of treating the product immediately after the root is washed and crushed, as it spoils very quickly.

Potatoes

It is a curious fact that although the potato is indigenous to South America and finds in Brazil conditions admirably suited to its cultivation, Brazil regularly imported thousands of tons annually of this important crop prior to the World War. As this article came chiefly from England, it is known in Brazil as the English potato, though we call it the Irish potato. Cut off from its regular supply during the war, Brazil not only increased its production suffi-

ciently to meet its own needs, but even exported in 1917 and 1918 each, more than 5,000 metric tons. But in 1919 the exports had fallen to 376 tons and the imports had again mounted to over 1,000 tons, the latter climbing to over 7,000 in 1920, while exports were almost nil. In 1921, however, the imports dropped again and the exports increased. In view of the fact that the price per pound paid for imports is double that of the price received for exports, it is difficult to understand why the local production does not drive out the imported product and even cut into the foreign market.

The total production of potatoes in Brazil is calculated at some 190,000 metric tons, chiefly of the sweet potato variety, which gives a much greater yield per acre and finds a wider area of soils particularly adapted to its growth. But manioc as a starchy food is easier to raise and cheaper per pound than potatoes, so that for the great bulk of the population potatoes are not likely to play an important rôle in Brazil.

Wheat

The production of wheat is not ordinarily thought of in connection with a country like Brazil, that is pictured as wholly tropical or sub-tropical. (And yet in the southern portion of the country there are millions of acres of admirable wheat land, sufficient to raise all the wheat needed in Brazil. But notwithstanding that fact, hundreds of thousands of tons of wheat are imported into Brazil each year, in addition to thousands of tons of wheat flour. In 1921 almost 400,000 metric tons of wheat were imported into Brazil, and 65,000 tons of flour, while the production of this cereal within the country was estimated at only 136,000 metric tons.

A hundred years ago wheat was cultivated in Rio Grande do Sul to a greater extent than today. But the rust and other diseases attacked the crops and caused their abandonment in favor of cattle raising, and until recent years little has been done to revive the wheat production. The World War here again operated as a great stimulus to the production of this food, and the national government as well as the governments of the three southernmost states are endeavoring to make the country self-sufficient in this respect. But this development is just beginning.

Cocoa

One of the most interesting and potentially one of the most valuable of Brazilian agricultural products is cocoa. This is the fruit of the *Theobroma cacao*, and is properly termed "cacao." The English designation "cocoa" is a corruption and, though firmly established by usage, is unfortunate in that it leads to confusion of this tree with the cocoanut palm, *Cocus nucifera*, to which it is wholly unrelated. The designation cocoanut is itself incorrect, though likewise accepted in common usage, and should be spelled coconut. Cocoa is also likely to be confused with coca, *Erythroxylum coca*, another tropical plant, found especially in Peru and Bolivia, from the leaves of which cocaine is obtained.

Cocoa, then, to use the usual if incorrect designation, is a tropical plant which, though indigenous to the Amazon Basin of Brazil, was brought into Bahia by colonists in 1665 and soon became one of the important agricultural products of that portion of Brazil. The cocoa tree was indigenous to Mexico, and when the Aztecs invaded the empire of the Toltecs early in

the fourteenth century, they found that the kernels of the fruit were roasted and ground to a powder and made into a drink with boiling water by the Toltecs, who likewise by the addition of honey, corn meal, and various extracts, manufactured chocolate. "Cacao" and "chocolate" are, therefore, both names derived from Aztec words, "Cacahatl" and "Chocolatl" respectively, which the first Spanish arrivals adopted into their own language with little change, and which have become incorporated almost in their original form into all languages.

Of such fundamental importance was the cocoa in the empire of the Aztecs that the seeds were regularly used as a medium of exchange in commerce and even for the payment of taxes. Among the treasures of Montezuma, acquired by the victorious Cortez and his followers in 1521, were almost a thousand tons of cocoa seeds. Transported to Spain, cocoa and chocolate were for the first time introduced into Europe, their use spreading slowly to Italy, about 1600, then to France, then about 1660 to England, and a few years later to Germany. At the time of the introduction of the first plants for cultivation into Brazil, therefore, the use of this valuable product was practically confined to southern Europe. It was not until Brazil was already an independent empire that the export of cocoa became an important factor in the foreign commerce of Brazil, increasing in a century from practically nothing to over 50,000 metric tons.

The cocoa tree, called *cacoeiro* in Portuguese, is a tree that ordinarily grows to a height of from 16 to 26 feet, though some varieties grow as high as 35 feet with a trunk 9 or 10 inches in diameter. They thrive best in light and porous alluvial soil, in a hot and

humid climate, conditions met with in millions of acres of the river bottoms and in the coastal plains of Brazil. Planted about 300 to the acre, the young trees have to be protected against the sun until they reach maturity. Bearing in their third year, the trees will produce steadily for 20 or even 30 years. Yielding under favorable conditions as much as 200 pods, or some 20 pounds of beans to the tree, cocoa plantations are more easily cared for than coffee plantations, and yield proportionately as high a return. The average yield of cocoa is calculated at 800 grams or $1\frac{4}{5}$ pounds per tree, the beans yielding, besides the cocoa itself, a large amount of oil or cacao butter, not to be confused with cocoa butter, a product of the cocoanut palm. The export value of the Brazilian cocoa, which is the chief source of the world's supply next after the Gold Coast in Africa, is around 12 cents a pound, or about the same as the average export price of coffee, though like the latter subject to great fluctuations.

Cocoa plantations are encountered in a half dozen of the Brazilian states from Amazonas and Pará in the north to São Paulo in the south. But Bahia is and always has been the chief center of production, the natural conditions being as favorable for the cocoa in southern Bahia as they are for coffee in São Paulo. Of the 50,000,000 cocoa trees in Brazil, fully four-fifths are in the single state of Bahia, the area under cultivation in cocoa there being calculated at over 400,000 acres.

(Like coffee, cocoa is almost wholly an export crop; that is, the bulk of the product is exported and only a very small part is used in domestic consumption. So in 1920, out of a total production estimated at 61,000 metric tons, there were exported 54,418 metric tons.

Just prior to the World War in 1913, the total exports of cocoa amounted to only 29,750 metric tons. In spite of the exclusion of Germany by the war, which country had been the chief importer of Brazilian cocoa, the exports reached 55,621 metric tons in 1917, almost the double of the pre-war figures, and in 1919 a maximum of 62,584 tons was reached. In spite of a subsequent decline, due to the demoralized conditions of the world market, Brazil is unquestionably in a position to secure and hold a dominant position in this agricultural product, the world demand for which is continually increasing. As in the case of Brazilian cotton, and formerly of Brazilian coffee, so with Brazilian cocoa, the demand for that product and the prices obtained are prejudiced by a lack of standardized preparation for the market, by speculative buying, and by adulteration. It is the aim of the federal government, as well as of the governments of the cocoa growing states, to remedy this condition by measures similar to those adopted for coffee and cotton.

Land Values and Agricultural Wages

The census of 1920, for the first time in the history of Brazil, gave a fairly accurate idea of the total number and value of agricultural holdings in Brazil, distributed by states. According to this enumeration there were in the entire country some 648,153 rural establishments, of a value calculated at 10,568,008:691\$000, which, converted into dollars at 4 milreis to the dollar represented \$2,642,002,173. The total area represented about 440,000,000 acres. The average value per hectare was calculated at 60\$000 or \$15, which would be the equivalent of only a fraction over \$6.00 an acre. The average area per farm enumer-

ated was about 680 acres or something over a square mile.

But the average value per acre varied enormously for the different states, as will appear from the following table showing the number of establishments, the total value, including improvements and equipment, and the average value per acre, by states. The value of the machinery was about 3 per cent, of the improvements about 18 per cent, and of the land about 79 per cent of the total.

<i>States</i>	<i>No. of Holdings</i>	<i>Value @ 4 milreis per \$1</i>	<i>Aver. Value per Acre</i>
Alagoas	8,840	\$ 31,987,541.00	\$ 9.62
Amazonas	4,946	24,086,480.00	1.31
Bahia	65,181	139,238,509.00	6.68
Ceará	16,223	38,768,299.00	2.73
Espirito Santo	20,941	45,255,297.00	14.27
Federal District	2,088	9,459,751.00	74.46
Goyaz	16,634	61,046,914.00	1.01
Maranhão	6,674	11,860,577.00	1.62
Matto Grosso	3,484	60,059,678.00	1.21
Minas Geraes	115,655	490,250,103.00	7.28
Pará	26,907	48,432,152.00	2.02
Parahyba	18,378	43,558,286.00	4.65
Paraná	30,951	77,131,417.00	5.87
Pernambuco	23,336	98,078,538.00	7.69
Piahy	9,511	21,401,767.00	1.52
Rio de Janeiro.....	23,699	114,070,381.00	15.07
Rio Grande do Norte.....	5,678	21,943,326.00	3.64
Rio Grande do Sul.....	124,990	502,749,820.00	10.90
Santa Catharina	33,744	47,791,418.00	5.47
São Paulo	80,921	721,785,861.00	21.04
Sergipe	8,202	24,760,605.00	13.25
Territory of Acre.....	1,170	8,381,358.00	0.80
Totals	648,153	\$2,642,002,173.00	\$ 6.07

From the above table it appears that the average value of agricultural holdings varies from less than a dollar an acre in the undeveloped Acre Territory to \$75.00 an acre in the region immediately surrounding the federal capital. Of the total number of holdings

321,566, or almost exactly one-half, are found in the three states of Rio Grande do Sul, Minas Geraes and São Paulo, and the total value of the holdings in those three states was calculated at the equivalent of \$1,714,785,784.00, or about 65 per cent of the total.)

Striking as are the variations in the average values per acre by states, the variations in value within any state are almost as great, so that the figures given above as state averages do not reflect a complete picture. São Paulo, for instance, which shows the highest average value per acre of all the states, not counting the Federal District, shows the following range of variations, reproducing conditions that are found proportionately in more or less all of the states. Along the littoral the land varies from 15 to 200 milreis per hectare, or \$1.52 to \$20.23 an acre, and the same values are encountered on the plains of the interior. But the "violet lands," *terras roxas*, which are the ideal soil for coffee culture, bring from \$2.00 to \$62.00 an acre, depending on location, and in the neighborhood of the capital of the state, agricultural land brings as much as \$1,000 an acre.

Grazing lands in the great cattle state of Rio Grande do Sul vary from \$12.00 to \$36.00 an acre, while irrigated sugar lands in Sergipe fetch as high as \$150.00 an acre. On the other hand, vacant lands in the unsettled portions of Goyaz and other western states, can be had for as little as 25 to 50 cents an acre.

In a country like Brazil, where much the greatest portion of the land is not as yet under cultivation even in the more densely populated states, and where there is comparatively little land that is not suited to the cultivation of some one of its many agricultural products, fertility of the soil is a less important factor in

land values than is accessibility to markets, the value of the land being determined primarily by the means of transportation available for the marketing of the products. Moreover, the intimate connection between density of population and land values is very apparent from a comparison of the density of population for the various states given on page 267 above, and the average value per acre of the agricultural lands. Of the ten states having the greatest density of population, seven rank also among the first ten classified according to the average value per acre of agricultural land.

Aside from the cost of the land, which as has been seen depends on its character and its distance from the market, not to mention other minor factors, the cost of labor is one of the most important items to enter into the cost of the crops produced, though this item is less important in Brazil than it is in the United States of America.

Statistics as to average wages of agricultural laborers are as difficult to obtain, and when obtained are as little illuminating as are the figures with regard to land values, because the variations from the average are so great, not only for the country as a whole, but even within a single state, or for a single kind of product. But taking the figures as available for the year of the census, 1920, it appears that the average minimum wage paid is about two milreis per day, or say 50 cents with keep. This figure varies in the different states from one milreis in Bahia to three milreis in Rio de Janeiro state. The average minimum wage, that is the wages paid in planting and harvesting times, is about 3\$825 or \$0.96 a day, varying from 50 cents in Pernambuco to \$1.50 in the southern states.

Scarcity of labor at harvest time naturally leads to increased wages, rising in certain regions and at certain times well above the average maximum given above, but even so the labor costs are far below what they are in the United States of America. It is true that in the case of many of the important agricultural crops of Brazil, the harvest extends over a longer period than is the case with most of the crops of the temperate zone, where harvesting must often be completed within a period of a few days if a maximum yield is to be obtained. But notwithstanding that fact, agricultural labor in Brazil as elsewhere is a seasonal occupation for the most part, with all of the drawbacks flowing from that characteristic, while the relatively unimportant rôle played up to the present in Brazilian agriculture by labor-saving machinery, makes the industry very dependent upon a sufficient labor supply.

Concluding this rapid glance at the development and present status of agriculture in Brazil, attention must again be drawn to the fact that only a very slight proportion of the potential agricultural resources have as yet been developed. Of the total area of Brazil, something over 2,000,000,000 acres, only one-fifth is included in the agricultural property listed in the last census. Of this one-fifth, approximately a quarter is still in timber, and of the remaining three-fourths it is estimated that about three-fourths again is pasture land. In other words, of the entire area of Brazil, very little of which is unsuited to agriculture of some kind, up to the present only about 3 per cent is actually under cultivation. No further statement is necessary to emphasize the inestimable possibilities of Brazilian agriculture.

CHAPTER X

INDUSTRIES

STRICTLY speaking, agriculture, which we considered in the preceding chapter, is, of course, an industry, in fact the chief national industry of Brazil. It might, therefore, properly have been considered under the general title placed at the head of this chapter. But as it constitutes not only the chief economic activity of the country, but is distinguished from all the rest in that it is concerned with the cultivation of the soil, it seemed best to consider it in a special chapter.

The remaining chief industries of Brazil will be touched upon in this chapter, classified under the heads of the livestock industry, the extractive industries, such as mining, lumber, rubber, vegetable oils, etc., and manufacturing industries. This last term, which in its broadest sense may be considered to include any operation performed upon raw products, could also, strictly speaking, be made to apply to many of the operations closely connected with the other industries enumerated above, as the conversion of cattle into dressed meat, the reduction of ore, the conversion of trees into lumber, the treatment of the latex to make crude rubber, etc. But for the sake of convenience these primary operations will be considered in connection with the production of the raw material for market, confining the use of the term manufacturing to the conversion of the raw materials into a more or less finished product suited to immediate consumption.

The Livestock Industry

Cattle were imported into Brazil from the Cape Verde Islands when the first permanent settlers came to Martim Affonso de Sousa's colony of São Vicente in 1534. From there the increase was transported to the plains of São Paulo, and when the slave-raids and gold-seeking and other exploratory expeditions of the *bandeirantes* opened up the great interior of Brazil, "xarque" or jerked beef not only constituted the major article of their provisions, but domestic animals of all sorts followed in the wake of the first settlers, and it is probable that the ancestors of most of the cattle found in the interior originated from the earliest nucleus in São Vicente. It is even possible that some of the wild or native cattle encountered in those regions and believed by some to be indigenous to Brazil, are the somewhat modified descendants of these earliest imported stocks.

Cattle continued to be brought over from Portugal and her islands from time to time to the seaboard settlements, notably to Bahia in 1550, after the appointment of Thomé de Sousa as first governor-general. All during the colonial period the breeding of livestock constituted a most important economic activity of the colonists in every portion of Brazil. But since it was not an industry that brought in any revenues to the Crown, it was little aided by the home government and little sung in the annals of Brazil. When the production of beef cattle began to exceed the needs of immediate consumption of the colonists, an impetus was given to the preparation of jerked beef or xarque, which both in the extreme north of Brazil, Ceará, and in the extreme south, Rio Grande do Sul, soon devel-

oped into an important industry, the products of which were exported to all other parts of Brazil. Toward the end of the eighteenth century the municipality of Natal in Rio Grande do Norte prohibited the xarque industry because it alone was consuming more beef than the natural increase of the herds in that region, and during the first three months of the year 1789 no less than fourteen boat loads of 2,000 head of jerked beef each had been consumed in Pernambuco alone. Xarque had become a basic article of food.

Upon the advent of John VI to Brazil, the introduction of cattle for breeding purposes was greatly stimulated, and during the whole period of the empire this development for the improvement of the local stock continued. After the establishment of the republic in 1889 even greater attention was paid to this matter, the greatest advances being recorded since the establishment of the separate department of agriculture, industry and commerce, in 1909.

The importance of the livestock industry in Brazil today can best be appreciated from an examination of the returns of the agricultural census made in 1920, the first one that seriously attempted to enumerate the number of cattle in the country. The following table gives the enumeration by states, classified according to the character of the animals as of September 1, 1920. (See page 329.)

Although this represents, as has been said, the first attempt at a careful enumeration, the national department of agriculture in 1916 made as accurate an estimate as possible of the cattle then existing in Brazil, which for purposes of comparison is reproduced in summarized form herewith, alongside the census figures of 1920. (See page 330.)

THE BRAZILIAN LIVESTOCK CENSUS OF 1920

<i>State</i>	<i>Beeves</i>	<i>Horses</i>	<i>Asses and Mules</i>	<i>Sheep</i>	<i>Goats</i>	<i>Swine</i>
Alagoas	388,378	84,998	14,105	164,210	219,081	86,869
Amazonas	238,449	16,918	2,108	12,479	3,602	35,270
Bahia	2,698,106	381,127	250,314	954,617	1,419,761	784,155
Ceará	580,028	122,944	117,793	393,558	530,743	183,737
Espirito Santo	161,160	50,106	31,833	11,627	20,928	367,168
Federal District	23,367	7,220	16,161	2,398	4,685	22,639
Goyaz	3,020,769	259,486	45,801	41,574	36,311	485,390
Maranhão	834,596	110,575	22,138	48,016	120,692	171,683
Matto Grosso	2,831,667	168,699	8,907	40,242	9,374	108,448
Minas Geraes	7,333,104	1,145,568	384,862	310,938	203,102	4,870,549
Pará	615,482	62,291	4,486	31,661	16,419	208,450
Parahyba	444,928	106,644	71,665	279,156	545,897	99,238
Paraná	539,765	190,138	43,969	56,265	44,254	778,342
Pernambuco	745,217	189,856	73,092	419,872	855,638	226,181
Piauhv	1,044,734	111,668	56,148	207,517	301,353	208,398
Rio de Janeiro	581,203	118,270	40,498	33,130	41,580	512,882
Rio Grande do Norte	318,274	47,867	82,227	166,146	216,290	30,327
Rio Grande do Sul	8,489,496	1,406,809	214,829	4,485,546	94,413	3,367,098
Santa Catharina	614,202	138,079	40,727	48,825	16,576	613,833
São Paulo	2,441,989	489,803	326,079	96,885	252,711	2,934,153
Sergipe	311,239	47,724	12,995	123,708	132,294	51,855
Territory of Acre	15,178	909	4,522	5,067	951	21,879
Totals	34,271,324	5,253,699	1,865,259	7,933,437	5,086,655	16,168,549
Grand Total of all Cattle						70,579,123

	1916	1920
Beeves	28,962,180	34,271,324
Horses	6,065,230	5,253,699
Asses and Mules.....	3,221,910	1,865,259
Sheep	7,204,920	7,933,437
Goats	6,919,550	5,086,655
Swine	17,392,210	16,168,549
Totals	69,776,000	70,579,123

Making allowance for the fact that estimates are more likely to be too high than too low, the enormous increase in the number of beef cattle in 1920 as compared with the estimates for 1916 becomes all the more striking. And from the 1920 census figures appears the further significant fact that the number of head of beef cattle alone was almost the equal of the number of head of all other kinds of cattle taken together. Indeed the preëminence of the beef cattle industry is the most striking fact about the livestock industry in Brazil, that country now occupying second rank among the countries of the world in cattle production. This branch of the livestock industry, therefore, merits some special consideration even in this brief summary.

A glance at the table given above will show that cattle raising is a considerable industry in every state of the Union, from north to south and from east to west. The states showing the largest number of beef cattle, moreover, those with more than a million head, stretch from Piauhý on the north to Rio Grande do Sul in the south, and from Bahia on the east to Matto Grosso on the west, presenting all the variations of Brazilian topographic and climatic conditions.

In the greatest cattle state of all, Rio Grande do Sul, the climatic conditions are most nearly like those of Europe, and there we find not only the largest number

of beef cattle, horses, and sheep of any state in the Union, and the next to the largest number of swine, but we find also the most extensive breeding of the best European stock, Durhams, Herefords, Jerseys, and Devonshires in beef cattle, Oxfords, Southdowns, Hampshires, Rambouillets, Romneys, and Merinos among the sheep, as well as the best English and continental European swine.

To the north of the four southern states, the predominating beef cattle are either the so-called native stock, the *caracú*, the *frankeiro*, the *bruxo* and the *mochó*, all more or less related to each other and considerably modified by cross-breeding, or crosses of these with imported breeds. The *frankeiros* are noted for their enormous horns, while the *pantaneiro* or *cuiabano*, existing in a practically wild state in the lowlands of western Matto Grosso, has much shorter horns. None of the strictly Brazilian varieties is the equal in meat-giving qualities to the pure-bred European stocks, but they have developed a high power of resistance to the peculiarities of the climatic conditions and of the fodder on which they are dependent. In this central zone, as it is called, the best results are obtained from cross-breeding of native stocks with European breeds, but really scientific cattle raising is all but unknown. In the great prairies of Goyaz and Matto Grosso the cattle run wild by the hundreds of thousands, and almost all the attention they receive is at the calving period when the young are branded, and when they are herded together once a year for the drive of hundreds of miles to the nearest market.

One of the foreign breeds that seems to have met with most success in Brazil is the zebu, introduced from India and particularly prized as draft oxen. In

Minas Geraes is the great center of the dairying industry, for which the best European breeds have been very generally introduced with considerable success.

For domestic consumption in most of the interior, beef cattle are dried to make the famous and well-nigh ubiquitous *xarque* or dried beef. But in recent years up-to-date slaughter houses have been installed with enormous cold storage plants for the shipment of chilled and frozen meat to Europe. These are mostly in Rio Grande do Sul and São Paulo, and the first one was established as late as 1913. The first experimental exports were made in the next year, when a bare metric ton was sent to England. Then came the World War, with its increased demand for food supplies, and foreign meat packers began to build packing plants in southern Brazil. Aside from the Brazilian undertakings, mostly of smaller size, there are in operation in Brazil packing plants of the "Continental Products Co.," "Armour," "Wilson," "Swift," and others, in São Paulo and Rio Grande do Sul. From virtually nothing in 1915, the exports of frozen and chilled meats jumped to 66,452 metric tons in 1917, and averaged for the five years from 1917 to 1921 over 60,000 metric tons a year.

Aside from the preparation of *xarque*, the beef cattle are employed in industry in a variety of other ways. The packing plants manufacture the usual by-products, including preserved meats and extracts, and the hides figure largely in exports as well as in the national leather industry. The exportation of hides alone in 1919 amounted to over 56,000 metric tons, mounting in 1923 to nearly 58,000 metric tons.

Similarly, aside from the meat itself, the sheep and swine industries furnish important products for do-

mestic consumption and even for export in the form of wool and lard, not to mention the skins.

The growth of the livestock industry in Brazil in comparatively recent years is one of the most astonishing phases of that country's progress. But neither in the quality of the stock raised nor in the utilization of the natural advantages favoring that industry in Brazil has anything more than a beginning as yet been made. Nearly half of the total surface of the country is suitable for the raising of cattle. If a general average of 50 head of cattle, viz., 20 beef cattle, 15 swine, 10 sheep or goats, and 5 horses, were calculated per square kilometer of grazing land (0.3861 square miles or 247.1 acres), roughly five head to the acre, the number of cattle in Brazil could easily be increased to 200,000,000, in place of the 70,579,123 enumerated in the census of 1920. In Rio Grande do Sul today the density of the cattle of all sorts amounts to half again as much as the estimate of 50 per square kilometer on which the above calculation is based, so that the supposition is by no means beyond the bounds of possibility.

With a view to stimulating the attainment of this desirable goal, the national department of agriculture is coöperating with the governments and individual cattle raisers in the states, to improve both the number and the quality of the stock. What this will mean in the increase of national wealth in Brazil, especially as the world will be compelled to look more and more to Brazil for the products of the cattle industry, can scarcely be imagined. To the uninformed the already enormous importance of this basic industry in Brazil is one of the many wonders of the country, as it is a guaranty of economic strength.

Mining

During the seventeenth and eighteenth centuries in the colonial period of Brazil, mining became the chief industry of Brazil, next to agriculture and stock raising. With the discovery of gold in Minas Geraes in 1693, and of rich diamond deposits in the same region in 1721, the thirst for gold and precious stones became the dominating obsession in Brazil. Thousands upon thousands of adventurers rushed into the mining regions from São Paulo in the south and from Bahia on the north, including many who came over from Portugal upon hearing of the new discoveries. Negro slaves were brought in by the thousands, and not only was Minas Geraes crossed and re-crossed by the prospectors, many of whom having come to engage in mining remained to settle upon and cultivate the land, but the enormous western wilds of Goyaz and Matto Grosso were opened up in the same feverish search and permanently added to the domains of Portugal in South America.

But most of this mining consisted simply in surface explorations, the exploitation of surface veins and the washing of gold and diamond bearing sands of the river bottoms. By the beginning of the nineteenth century these easy sources of almost visible wealth were already pretty well exhausted. Owing to the expense of importing the necessary machinery and the difficulties of transportation in the remote regions, deep shaft gold mining could hardly prove profitable in view of the heavy taxes imposed. Of all the gold mines in Brazil, only two are actually producing in important quantities today. These are the Morro Velho mine and the Passagem mine, the one situated

not far from Bello Horizonte and the other within five miles of Ouro Preto, the former capital of Minas Geraes. They are both operated by British companies and exhibit the most modern and approved methods of operation, the Morro Velho mine being the deepest mine in the world, 6,500 feet below the surface having already been reached, and a further depth to 7,700 feet being contemplated. The total output of the two mines has been contracted for by the Brazilian government, the Morro Velho producing about 5 tons of gold a year, and employing about 3,000 men.

Aside from these two mines, the only ones of any importance, countless individuals are continually engaged in washing the sands of the numerous gold-bearing streams of this and other auriferous regions of Brazil, but the methods are of the most primitive and the total production is insignificant. New gold mining projects are, however, being promoted.

Diamond mining is even more primitive in Brazil than the gold mining. Scarcely any companies with large capital exist, and much the greatest part of the production is the result of the efforts of individuals, sometimes working entirely alone, sometimes with the employment of a small number of hired laborers. Washing the gravels of the streams in the diamond-bearing regions is the favorite method of exploitation, though in some cases more ambitious efforts, such as the blasting out of rocks or the turning of a stream from its bed are attempted. In considerable areas of the diamond regions, rich deposits are believed to exist in the bed rock, sometimes forty or fifty feet below the river beds. Here expensive dredges are required, and the initial expense necessitated, coupled with the speculative nature of the deposits, have so

far prevented any considerable attempts at systematic workings.

No figures are available as to the total production of diamonds in Brazil, for although in colonial times diamond mining was made a government monopoly, an English mineralogist estimated early in the nineteenth century that two million carats of stones, better than those that were officially declared, left Brazil as contraband. Since diamond mining has been again opened up to private enterprise, there is no way of calculating the annual production today, though it is far below what it was in the heyday of the diamond industry. Exports of diamonds in 1920 were valued at over 5,000,000 milreis, or about a million and a quarter of dollars, but this represents only the declared exports and throws little light on the volume of the national production. But scarcely a year goes by without the discovery of new deposits and the finding of some specially fine stones.

Of the large scale mining operations in Brazil today, the most important are those concerned with the extraction of manganese ore. They are almost wholly concentrated in the two centers of Miguel Burnier and Queluz, both in Minas Geraes. As practically the whole of the ore mined is exported, the export figures give a fairly accurate conception of the annual production. From 1902 to 1914 the average annual exports of manganese ore amounted to about 175,000 metric tons. Then they began to mount rapidly during the years of the World War, reaching 532,855 in 1917, falling off again in the two succeeding years, but returning in 1920 to 453,737 metric tons. Of this amount, 446,229 were exported to the United States alone, the Bethlehem Steel Company being the largest

purchaser and the owner of the largest single mine in Brazil. The export value of the manganese ore shipped out in 1920 attained 39,829:450\$000, or almost \$10,000,000.

Coal mining is the next most important mining activity of Brazil, the principal coal mines being located in Rio Grande do Sul and Santa Catharina. Out of a total production of around 300,000 tons annually, a single mine, the São Jeronymo, in Rio Grande do Sul, produced more than two-thirds in 1921. But more than three times as many tons of coal were imported into Brazil as were mined in the country, though the known deposits are estimated at over 2,000,000,000 tons. But until the rise in prices occasioned by the World War, coal could be imported from England at prices so low, about \$9.00 a ton, as to prevent the development of the national coal-mining industry, which labored under serious handicaps of high costs for machinery, shortage of labor, and high transportation costs. But by 1920 the price delivered in Brazil had more than trebled, being \$30.00 a ton and the local product could be profitably mined and sold in spite of the handicaps mentioned above. British coal, which had necessarily fallen off greatly during the war years, being replaced very largely by coal from the United States, had by 1921 regained a position of importance, and a corresponding decrease in the import price was registered, the cost per ton being only 94 milreis, which at the reduced exchange value of the milreis amounted to only a little over \$12.00 a ton, or about 30 per cent over pre-war prices. The permanent stimulation of the national coal mining industry in Brazil is, therefore, dependent upon an improvement in methods of mining and in the reduction

of overhead costs to permit of competition with the imported product.

Of the remaining mining activities of Brazil, the only ones of real importance so far are the salt industry and the collection of monazitic sands, neither of which, however, is a strictly mining industry, as the salt is secured in evaporation beds and the sands are collected on the surface also.

Lumber

It will be remembered that the earliest industry of Brazil was the gathering of dyewoods, chiefly the brazilwood from which the country derived its name. During the sixteenth and seventeenth centuries this *páó Brazil* constituted an important article of commerce between Brazil and the mother country, as well as the chief object sought by the French and Spanish freebooters. It was soon displaced, however, by the agricultural products, sugar, tobacco, cotton, and coffee, though it has continued to figure steadily among the articles of export from the earliest times to the present, the exports in 1920 of brazilwood alone amounting to 283 tons.

But whereas until recent times dyewoods and cabinet woods were the principal forest products that were exported from Brazil, the last decade has seen an astonishing increase in the cutting and exporting of lumber for construction purposes, especially cedar and pine. In 1918 the exports of timber and lumber from Brazil reached the record figures of 179,799 metric tons, of which 66,000 tons were shipped from the single port of Paranaguá, the seaport of Paraná, home of the Araucaria or Paraná pine. Though the shipments of lumber fell off somewhat in succeeding

years, they amounted to over 125,000 and 100,000 tons respectively in 1920 and 1921, the Paraná pine constituting almost three-fourths of the total in the latter year. Four-fifths of this lumber output is shipped to Argentina and Uruguay, both of which countries are relatively poor in forests and were formerly important purchasers in European markets.

The export figures give some notion of the importance of the lumber industry in Brazil today, but they do not of course take into account the very considerable consumption of lumber for construction and manufacturing purposes within the country, for which no statistics are available. Deforestation is going on at a very rapid rate, and although the hundreds of millions of acres of forest lands in Brazil seem incapable of exhaustion, the national and state governmental authorities are already concerned over the failure of private exploiters to reforest the cut-over lands, a relatively easy matter with the rich soils, abundant rainfall, and tropical warmth of Brazil. Encouragement is also being extended to the planting of various kinds of useful trees, especially in the case of the eucalyptus, which thrives splendidly in Brazil and is of the greatest value for railroad ties, telegraph poles, fences, piles, etc. Forest preserves are also being created in national and state territory to insure the economical exploitation of the timber resources. Much of the wood exported is in the shape of logs, but the growth of the lumber industry has resulted in the establishment of many sawmills in the last few years, with a corresponding increase in the proportion of lumber sawed for export.

In the national consumption of wood-products, the use of wood for fuel plays an important part, as,

owing to the scarcity and high price of coal, not only the railways and river steamboats use wood for fuel but also many of the sugar mills and other factories. For this purpose, of course, wood of all sorts is gathered in the most convenient locations. But as was pointed out in discussing the forest resources of Brazil, the development of the lumber industry in Brazil is greatly handicapped not only by inadequate transportation facilities, but also by the fact that with the exception of the Paraná pine, which grows in immense concentrated areas in the southernmost states of Brazil, the most valuable woods of Brazil are scattered over the widest areas, single specimens appearing in the midst of other kinds of trees and at some distance from their own kind. As each species of wood requires special methods of felling and transportation and concentration at different ports for shipment, the profitable exploitation of a particular dye-wood, cabinet-wood, or wood for construction purposes becomes a matter of considerable difficulty and expense. Hence we have in Brazil the curious spectacle that the country with the greatest timber resources in this hemisphere if not in the whole world, and exporting in 1920 a total of 125,000 metric tons of timber and lumber, in the same year imported more than 38,000 metric tons of lumber.

Rubber

One of the most interesting, and for many years one of the most important, of Brazilian industries, is the rubber industry. Potentially it is still one of the most promising, though for various reasons which will be touched upon, it has fallen on bad days.

As was pointed out in an earlier chapter, India

rubber was known as a useful article of industry to the aborigines of the Amazon region, who manufactured rubber boots and other articles out of rubber for domestic use. As an export article rubber took its place among Brazilian products as early as the beginning of the nineteenth century. In 1825 there were exported 94 metric tons, the number increasing steadily each year until the maximum of 42,000 tons was reached, in 1912. Since then, as will be seen, there has been a steady decline, the low point being reached in 1921, when the exports were only 17,438 metric tons. More disastrous, however, than the decline in the amount exported, and that means a corresponding decline in national production, since rubber is almost wholly an export commodity, has been the decline in the money value of the rubber exports.

The peak of the export prices of rubber was reached in 1910, when the article fetched 9\$780 a kilogram. That being also the year in which the milreis had almost the highest exchange value since the establishment of the republic, almost 17 pence, or 34 cents, this meant that each pound of pure rubber brought the equivalent of \$1.50 at the points of export, or a total for the 38,547 metric tons exported that year of more than \$125,000,000. This put rubber just a little behind coffee in value of exports for that year, and far in advance of every other article of export. Contrast with this the situation in 1921, when the total exports of the *seringa*, or product of the hevea, amounting to 17,070 of the total 17,438 metric tons of all kinds of rubber exported that year, brought only a fraction over two milreis a kilo. The production was almost the smallest of any year since the establishment of the republic, the price was the low-

est, and to cap the climax the drop in Brazilian exchange made the selling price sink in terms of American money to the lowest level ever recorded, about 6 cents a pound. What such a crisis means to the rubber producing states of Amazonas and Pará can scarcely be pictured, for not only does the falling off in volume of exports mean a corresponding reduction in the revenues of the states which depend largely on the export tax for governmental resources, but the fall in price meant that prices received were actually below production costs. From the point of view of the national economy as a whole, moreover, this product, which in 1910 had brought \$125,000,000 in gold into the country, in 1921 had a total value of only 1,231,027 pounds sterling, or \$4,667,426.79 in American money, the British pound sterling itself being considerably below par.

Though the reasons for this astonishing and calamitous decline in what was formerly one of the chief sources of Brazilian wealth are quite complex, and at first sight are the more difficult to understand because the collapse has occurred in the decade during which the industrial importance of rubber has been steadily mounting in an almost incredible manner, some of the outstanding factors are surprisingly simple. After the experiments of Goodyear in 1839 and of A. G. Day, some years later, led to the vulcanization of rubber by curing a mixture of pure rubber with sulphur, the commercial possibilities of rubber became unlimited. The Amazon basin of northern Brazil was the principal source of supply, and the exports of that article jumped from 3,546 metric tons in 1865 to 7,730 tons in 1875, and then in ten-year periods to 11,782, 19,310, 34,680, and finally, as was

stated above, to 42,286 in 1912. During all this period Brazil provided more than half of all the rubber produced in the world and profited accordingly, not only in the total amount exported but also in the price per pound obtained for the article.

But rubber production in Brazil labored from the first under severe handicaps. Chief among these were the inaccessibility of the producing regions, the scarcity of labor, and the hazards of production, all of which combined to make the cost of production relatively high, in spite of the fact that the virgin forests of rubber trees are almost illimitable and land costs or rents scarcely figure among the production costs. Combined with these disadvantageous factors in Brazil was the further fact that Great Britain, the chief industrial country of the world, possessed millions of acres of tropical possessions, suitable in soil and climate for the production of rubber by cultivation, and peopled with millions of native inhabitants who would furnish the necessary labor supply at minimum cost. The political control of the producing regions in this prime article of industry would, moreover, be in the hands of the British Empire instead of in those of an independent nation.

Under these circumstances it was inevitable that efforts should be made at an early date to introduce the culture of this plant into the British tropical possessions. In 1875 a British scientist collected the first seeds of the *Hevea brasiliensis* and carried them to England, where they were planted with the greatest care in the famous Kew Botanical Gardens. From there the young trees were later transported to Ceylon, and though the earliest attempts were not crowned with great success, it was not long before from this

as a center the cultivation of rubber trees began in other portions of British East India as well as in the Dutch Indies. In 1895 the first rubber plantations were started as commercial ventures in Ceylon and India. In 1899 the first shipment of rubber grown on these plantations arrived in England, and from then on the production increased by leaps and bounds. In 1900 plantation rubber was practically non-existent on the market. Twenty years later the production of plantation rubber had reached the enormous total of more than 300,000 tons, by the side of which the 23,587 tons produced in 1920 in the forests of Brazil sink into insignificance.

The effect of the plantation rubber competition first made itself markedly felt in the Brazilian export trade in 1911, for, while the total volume of exports was not appreciably affected in that year, and even reached its peak in 1912, yet the export price which had steadily mounted, with slight interruptions in 1908 and 1909, to its maximum in 1910, fell from 9\$780 a kilogram to 6\$145 in one year and thereafter steadily declined until 1921. Even the stimulus of the demand created by the World War, though it arrested the fall in price in 1916 and 1917, did not survive the resumption of shipments from the plantation areas, and fell in 1918 to a new low level.

The rubber industry of Brazil received its greatest stimulus from a rather peculiar fortuitous circumstance. As has already been stated, the most crying need of this industry has from the first been labor, and labor of the special kind that could and would endure the hardships inseparable from this difficult and dangerous occupation. Now in 1872, when the commercial demand for rubber was just getting into

full swing as a result of the discovery of the vulcanization process, the province of Amazonas, where the great forests of rubber trees were found, contained a total population estimated at only a little over 57,000 people, utterly insufficient to furnish the thousands of *seringueiros* needed for the collection and treatment of the precious gum. But in 1877 occurred the unprecedented drouth that devastated northeastern Brazil, and lasting three years turned enormous areas into uninhabitable wastes, especially in the State of Ceará. Deprived of all means of livelihood, the luckless inhabitants of those regions were forced to emigrate, which they did by the thousands. Most of them went to the rubber regions of the Amazon basin, and in this way began an exodus of the inhabitants of the drouth regions to the watery regions of Amazonia, which has continued to a greater or less extent ever since, greater in the periodic years of drouth, less when conditions in Ceará were more favorable. The tragic but inspiring migration of the *Paraoras*, as these emigrants were called, has furnished the theme for one of the finest pieces of Brazilian literature, and it made possible the development of the rubber region and the exploitation of its products. By 1900 the population of Amazonas, now largely composed of these unfortunate emigrants, had increased from 57,000 to 250,000, while Ceará, from which they were chiefly drawn, had not much more than held its own.

Without this accidental influx of rugged and determined, and indeed desperate, workers, the production of rubber in Brazil could never have kept up with the growing demand. But even this was not enough to save the industry when plantation rubber began to make its appearance in considerable quantities on the

market. The seringueiro, or rubber gatherer, had to be transported long distances to the virgin forests. Added to the costs of his transportation were the costs of feeding him with supplies that likewise had to be transported enormous distances and were extremely dear. It is true that he had to pay for his supplies out of the meager wages he received, but in any case his wages had to be placed at a figure which would pay for these supplies and at least a little over, else no laborers at all could be had, and the cost of these supplies constituted an important part of production costs. Then the seringueiro, living like an exile in the deeps of the tropical jungle, undernourished, a prey to loneliness and disease, had to cover a stretch of many miles through the forest, tapping the trees and collecting the gum, for the rubber trees are interspersed with countless other kinds of trees and tropical plants. So, although the supply of trees is inexhaustible and the daily wages small, the production per man is also relatively low.

After the latex has been collected it is smoked and coagulated on a mold over a resinous fire by successive dipping until the characteristic "biscuit" is produced, the same primitive process used by the Indians when the first white man discovered them at it. This process has an effect on the grade of the product.

After the rubber has thus been prepared for shipment, it has to be transported hundreds and even thousands of miles to the point of export, municipal and state taxes levying a heavy burden upon the already costly article. Small wonder then that East Indian plantation rubber, grown in easily accessible areas and collected and treated by cheap coolie labor, can undersell the Brazilian forest product, though

“Hard Fine Pará” is still valued as the best product on the market.

There seems to be but one solution to the “rubber crisis” in Brazil. If Brazilian rubber is to regain its dominant place in the world market, the hazardous and expensive exploitation of the native forests thousands of miles from the Atlantic must be abandoned in favor of systematic cultivation in areas in closer proximity to the points of export. For this the lands are there in unlimited quantities and with favorable climatic conditions. What is absolutely essential are capital and labor. The former is readily available from outside sources if not in Brazil itself, the great rubber manufacturers of the United States being in a position to furnish all that is needed, if favorable conditions can be obtained. A more serious lack is that of cheap and efficient labor to compete with conditions in the East Indies.

At the very time of writing, 1924, there is now in the upper Amazon region an official mission, authorized and backed by the government of the United States, aided by the national and state governments of Brazil, and promoted by the rubber industries of the United States, conducting a thorough survey of the whole rubber situation in Brazil. The Brazilian government is vitally interested in the proper development of its once great national product, the American rubber manufacturers are vitally concerned in the assurance of a plentiful supply of this fundamental commodity so much closer to its doors than the East Indies, and the American government is vitally affected by a development which will stimulate the production of an article so important for national defense in time of war, as well as for national industry in

time of peace, in a neighboring country with which no conflict of national interests could in any conceivable way lead to hostilities. From this concurrence of interests it is more than likely that some plan will be devised which will contribute to the welfare of each of the three coöperating forces.

Vegetable Oils

Of great actual importance among the industries of Brazil, and of even much greater potential importance, is the extraction of an almost countless number of varieties of vegetable oils and fats. Employed in a surprisingly large variety of ways, in medicine, in cooking, in the manufacture of soaps, as fuel, as lubricants, these vegetable oils are not merely essential products, but, because found in such profusion in the indigenous flora of Brazil, and because extracted by relatively simple and inexpensive processes, they furnish the basis for a widespread and lucrative industry.

The chief natural source of vegetable oils in Brazil is found in the native palms, of which no less than 1,200 species have been classified. Practically all of these palm trees, remarkable for the extent to which nearly the entire tree is useful to human beings, count among their principal values the oils or wax, obtained generally from the fruits or nuts, but sometimes also from the leaves and stems. As in the majority of cases nothing more is required than the gathering of the fruits, the extraction of the seeds, and the pressing out and cleaning of the oil, this industry requires practically no capital and is practiced locally on a small scale over a good part of Brazil.

The cocoanut palm, or rather the coconut, to avoid

confusion with the cocoa tree which we have already considered, of which single variety there are more than 100,000,000 trees in the native state along the coastal strip, is prized in Brazil not so much as a food as a producer of the valuable coco oil or butter, which up to the present, however, has occupied a minor place among the exports of Brazilian vegetable oils. The coco palm is easily cultivated and the nuts yield a high per cent of fine grade oil.

More important as an article of export is the copahyba oil, which is extracted from the trunk of the tree and has valuable medicinal qualities. In recent years experiments have demonstrated the high commercial value of the oil of the babassú palm, another native Brazilian tree of which millions of specimens grow wild in the forests. As in the case of the coconut and other oleaginous plants of Brazil, the fruits or nuts are shipped away in large quantities to have the oils extracted, though the extraction could easily take place on the ground, reducing transportation costs and increasing profits.

The list of native Brazilian plants yielding valuable oils is too extensive even for bare enumeration here. But in spite of the length of time since their value was first appreciated, and in spite of the comparative ease of extracting their valuable product and the almost unlimited quantities in which they exist, their utilization has remained far behind that of cotton seed and castor seed, both of which are produced from plants that are extensively cultivated in Brazil. Cotton seed oil, used extensively in domestic manufactures, has steadily risen in importance as an article of export, mounting from a little over one thousand metric tons in 1917 to a little below 5,000 metric tons in

1921. Castor oil, to the already well-known medicinal qualities of which was added the realization of its value as the highest grade of lubricant for aeroplanes, experienced a great boom as an article of export during the war, and, although suffering a considerable setback owing to the conditions of the world market since 1919, still stands second among the exports of vegetable oils from Brazil, both in volume and value.

Carnauba wax, extracted from the leaves of the *Copernicia cerifera*, is not only employed on a large scale in domestic manufacture, but is also exported in considerable quantities, chiefly to the United States. From 1917 to 1921 the average annual export of this article amounted to more than 4,000 metric tons, and the production is steadily increasing. But as the number of these trees is much less than of the coco palm, and the tree is commonly cut down because every part of it is valuable, replanting and cultivation of the carnauba palm will have to be undertaken on a systematic scale, if the supply of this profitable product is not to suffer serious diminution.

Vegetable Fibers

Another extractive industry which has existed in very rudimentary form in Brazil ever since the earliest colonial days, and indeed among the Indians whom the earliest colonists found in possession of the soil, is that of the preparation of straws and fibers from plants. In the chapter dealing with the flora of Brazil some mention was made of the remarkable number of plants indigenous to Brazil yielding fibers varying all the way from the finest flax to the coarsest twine and straw.

Though the extraction of a great variety of fibers

is an almost universal industry throughout Brazil in a small way, and in recent years the cultivation of fibrous plants and their treatment by machinery in large plants has increased to a remarkable extent, Brazil is still importing large quantities of jute, hemp, cordage, linen, and cotton threads. The only native fiber that figures to any appreciable extent among the national exports is that of the piassava palm, the coarse fibers of which are especially adapted to the manufacture of brooms and brushes. In 1920 the exports of this fiber reached 2,655 metric tons, but it has fallen off again somewhat since then.

Of the total value of the industry connected with the extraction of vegetable fibers no estimates are available, for so much of it is done by individuals and small enterprises satisfying a purely local demand. The most important by all odds is the ginning and spinning of cotton, consideration of which can perhaps be taken up better in the discussion of the manufacturing industries in the following section. Stimulated by the experiences of the years of the World War, the national authorities are taking steps to develop the fiber extracting industries to the point that Brazil, with its unexcelled natural resources of this nature, will not merely be independent of imports from abroad but will be able to take its rightful place as one of the chief producers for the world market.

Manufacturing

Manufacturing, save only the crudest preparation of articles of domestic necessity, never appeared among the economic activities of colonial Brazil, with the single exception, perhaps, of the milling and refining of cane sugar, which figured at the commencement of

the eighteenth century as the most important industry of Brazil. The reason for this, of course, was primarily that conditions were quite unfavorable to the development of manufacturing on any large scale, skilled workmen being wholly lacking, and machinery not having as yet been invented that facilitated the employment of unskilled labor. Besides that, however, the attitude of the home government in Portugal, like that in Spain, being intent only on the exploitation of its colonies, would not permit of industries in the dependencies which might in any way interfere with economic activities of the mother country.

So, when towards the end of the eighteenth century, cloth weaving and goldsmithing made their first feeble beginnings as Brazilian industries, the home government by decree of 1785 promptly prohibited all manufacturing in the colony. This action, as we have seen in an earlier chapter, was one of the events that prompted the ill-fated Conspiracy of Minas in 1789. But the policy of the home government was not changed in this respect until the advent of John VI to Brazil in 1808 fundamentally altered the relation between Brazil and Portugal, economically as well as politically.

On April 1, 1808, the newly arrived prince regent rescinded the decree of 1785 and established complete freedom of industry. On January 28 of the same year the ports of Brazil had for the first time been thrown open to the commerce of the world, and, while this measure was of the utmost importance and benefit to the country, it opened up Brazil as a market to the manufacturing countries of Europe, particularly Great Britain, and necessitated measures of special protection if the newly won freedom of industry was

to have any practical consequences in the creation of national manufacturing.

The decree of January 28, 1808, had established an ad valorem duty of 24 per cent on imports, which was, however, a revenue measure and not a protective tariff, since at that time there were no national industries to protect. But following the decree making manufacturing industries free, raw materials were put on the free list, and articles manufactured in Brazil were exempted from export duties, both of which measures were intended to stimulate national manufacturing industries. Along the same lines it was decreed at the same time that equipment and supplies for the Brazilian army should be exclusively purchased in Brazilian factories to the extent that these were able to supply them; that recruiting should be modified in the regions where labor was needed for agriculture or industry; that a fund of 60,000 cruzadoes should be taken from the national lottery to subsidize manufacturing industries, particularly of woollen, cotton, and silk goods and of iron and steel; the concession of patent rights for inventors of machinery, etc. Moreover, the culture of the mulberry tree was encouraged for producing silkworms; sugar mills and refineries were protected against being taken in execution of debts; grape culture and the manufacture of wines was encouraged in Curityba; tobacco seeds were introduced from Virginia and Maryland; and wheat and flax in Espirito Santo were relieved of the payment of the tithes.

These progressive measures augured well for the beginnings of a Brazilian manufacturing development and would undoubtedly have borne fruit had they been persisted in. But Dom João exhibited a vacillating

policy in many directions, and in none more so than with respect to this matter of encouraging national industries. Very shortly import duties on Portuguese articles were reduced to 16 per cent, and in 1810 a treaty was signed with Great Britain according to that country a reduction in import duties even greater than that conceded to the mother country, Portugal. Great Britain had saved Dom João and his household from Napoleon and had prompted the decree opening the ports of Brazil to the commerce of the world, meaning at that particular time for all intents and purposes the commerce of the benefactress, Great Britain. She had no intention of having her commercial interests jeopardized by any tariff wall that would interfere with the free flow of British articles to Brazil, especially since it might serve also the purpose of stimulating competing industries within that country itself.

In 1818 occurred a general reduction in import duties on all articles imported in Portuguese bottoms, and this measure, combined with the effects of the treaty with Great Britain which made Brazil the dumping ground for articles of British manufacture which had piled up in great unmarketable reserves because of Napoleon's continental blockade, definitely prevented the birth at this period of manufacturing industries in Brazil.

To the credit of Dom João there remained almost alone among permanent benefits to Brazilian industry important developments in the establishment of foundries for manufacturing cast iron. As early as 1600 a small forge had been set up in São Paulo, probably the first in the western hemisphere. But only the most primitive tools and methods were employed all

during the colonial era, and the production did not go beyond the most elementary needs of domestic consumption. But among the men brought to Brazil by Dom João were two noted scientists, Eschwege and Varnhagen, who, aside from many other notable services, established the iron industry in Brazil for the first time on a commercial scale. Varnhagen in 1818 put into operation the first blast furnace in São João do Ipanema in São Paulo, and Eschwege established a similar plant in Minas Geraes. But even these promising beginnings were destined to suffer relapses due to inefficient management, and the iron industry of Brazil, in spite of unequaled supplies of easily extracted iron ore, languished for another century.

If the economic policy of the government of Dom João failed to give the manufacturing industries of Brazil favorable conditions for establishment and growth, no less fruitless in this particular were the periods of the first empire, after the independence of Brazil was established under Dom Pedro I (1822-1831), and the regencies (1831-1840). By virtue of "most favored nation" clauses inserted into commercial treaties by Brazil with the principal manufacturing countries of the world as a *quid pro quo* for the recognition of Brazilian independence, import duties were levied on a 15 per cent ad valorem basis on the products of France, Austria, Prussia, Denmark, and the United States, as well as of Great Britain and Portugal, and until close to the middle of the nineteenth century Brazil was prevented by treaty obligations from embarking upon a policy of protective tariffs. Consequently all those years constituted a period of practical stagnation for Brazilian manufacture, for local products could not compete with the cheaper and

superior products of the industrially and commercially well organized countries of Europe.

The Alves Branco tariff of 1844 was the first measure adopted after the expiration of the commercial treaties noted above that looked to the protection of national industries. But it was in effect a tariff for revenue only and neither it nor the various uncertain and ephemeral measures adopted by the government during the next thirty years for the stimulation of national industry accomplished the avowed purpose. The most noteworthy measure adopted in this sense was the law of November 6, 1875, sponsored by the Baron of Cotegipe, extending credits amounting in all to 55,300 contos of reis to companies establishing central sugar refineries employing the most modern machinery, and guaranteeing interest on the capital of 7 per cent per annum. This measure was of the greatest benefit in placing the sugar milling and refining industry of Brazil on a modern and lucrative basis.

In 1879 the Baron Rio Branco secured the enactment of a tariff law based on an *ad valorem* rate of 40 per cent, a frankly protectionist measure, which, however, was seriously revised downward in 1884. Not until 1888, the year before the overthrow of the empire, was the protectionist principle accorded a full measure of recognition, and though somewhat modified in the tariff laws of 1890, the first under the republic, and of 1893, it was again emphasized in the tariff laws of 1897 and 1900. Since then the tariff question has agitated the national congress at almost every session, and numerous projects for revision have been introduced, many alterations in individual schedules having been put into force. But, generally



speaking, the period of the republic has been one of high tariffs, which, whether intended primarily as revenue measures or as measures of protection, have in fact contributed greatly to the remarkable development of manufacturing industries witnessed in Brazil, especially since the opening of the twentieth century. No immediate change of policy seems likely.

There is in Brazil another important factor affecting the manufacturing industries so far as export is concerned, which plays a rôle also in the agricultural production, as has been noted before. This factor is found in the power enjoyed by the individual states in the Brazilian Union to levy export taxes, a power not possessed by either the nation or the states in the United States of America. This power, which, it seems, was intended merely to apply to the taxing of exports to foreign countries, has in fact been exercised by Brazilian states to tax also the exports of their products to other members of the Brazilian federation. Hence, in order to stimulate local manufacturing industries, it was not enough that the federal government should erect a tariff wall against imported articles of manufacture, but the governments of the states themselves had to foster such industries by freeing them of state export taxes if the industries were to develop to the point where they could find a market in other portions of Brazil. This has in fact been done by the states in which manufacturing has begun to constitute an important source of wealth, in spite of the fact that in the past these detrimental export duties have constituted the major source of governmental income. São Paulo particularly has encouraged her manufacturing industries in this manner, and partly in consequence of that attitude has far

outdistanced most of the other states in the field of manufacturing.

It has already been pointed out that the chief characteristic of Brazilian manufacturing is the remarkable extent to which this industry is a local enterprise, small in plant and equipment, small in the number of persons employed, and small in the extent of the markets reached. This characteristic has been more or less imposed upon the manufacturing industry there because of the difficulties of transportation and communications, of which fundamental matter more will be said in the succeeding chapter. While the improvements of transportation of the present century have inevitably been reflected in the creation of larger factory units, the stage has not yet been reached, save in the two or three industrially most advanced states, where large scale production is the rule. This localization and diffusion of the manufacturing industry has made it very difficult to secure accurate data with reference to the number of manufacturing plants in operation, the amount of capital invested, the value of the raw materials employed and the value of the finished product for the whole of Brazil.

Even the census of 1920, by far the most painstaking and complete that has so far been undertaken in Brazil, gives only an incomplete picture, though it is sufficiently comprehensive to emphasize the remarkable development that has occurred in this direction since the beginning of the present century, which may be said to mark the real commencement of the era of manufacturing progress in Brazil. At this point it will be well to remark that, just as the conditions created by the World War enormously stimulated the agricultural industries of Brazil, especially as regards

the raising of foodstuffs for export, which had up to then always been imported, so also the impossibility of getting the normal supply of manufactured goods from Europe during the four years of the war proved a great impetus for the establishment of national Brazilian industries in those fields. It is true that in the case of some of these artificially stimulated industries of manufacture, as in the case of some of the likewise artificially stimulated agricultural production, a reaction set in after the close of the war which interrupted the continuance of some of these enterprises, unable to compete with the flood of cheap European goods. But in respect to manufacturing, as in respect to agriculture, some permanent gains of importance remain, not least among which assuredly is the realization born of the war period that Brazil can in case of necessity or under favorable conditions become self-sufficient industrially as she is agriculturally.

According to the 1920 census there were enumerated for the whole of Brazil 19,734 factories employing some 350,000 operatives. The capital employed amounted to 2,000,000,000 milreis, or roughly \$500,000,000, and the value of the annual output was calculated at 3,000,000,000 milreis, or about \$750,000,000. These figures relate only to establishments that employ operatives and do not include the thousands of one-man or one-family enterprises engaged in crude manufacturing throughout the whole of Brazil. Moreover, the census, though attempting to reach every manufacturing establishment, as a matter of fact had to rely in large part on the tax returns, in which the enterprises subjected to the consumption taxes were listed. In some areas, as in the Federal District, the enumeration was undoubtedly fairly complete. In the remote interior

districts, the census enumeration unquestionably overlooked a considerable number of establishments, individually insignificant, no doubt, but of some importance in the aggregate.

Of the total number of manufacturing establishments listed, it is interesting to note that 5,991 or almost one-third were found in the single state of São Paulo. Next in the number of factories came Rio Grande do Sul with 2,460, followed by the Federal District with 2,087, and then by Minas Geraes with 1,694. No other state returned as many as a thousand factories, but the next most important states in descending order of the number of factories were Santa Catharina, 953; Rio de Janeiro, 868; Bahia, 806; Paraná, 789, and Sergipe, 779. The great western cattle states of Matto Grosso and Goyaz returned only 34 and 27, respectively, as the total number of manufacturing establishments.

From the point of view of exports, the only manufactured articles of any considerable importance are sugar and the products of the packing industries, the total value of the manufactured articles exported being almost negligible when compared with the value of the raw materials exported. From the point of view of production and domestic consumption, however, cloth weaving is far and away the most important manufacturing industry, so far as the capital invested, the number of persons employed, and the value of the output are concerned. And of this industry, the most important phase by far is the manufacture of cotton cloth, though other aspects of the textile industry are already of considerable importance and increasing rapidly.

The cotton mills of Brazil, centered chiefly in São

Paulo, though only numbering some 250 out of a total of more than 19,000 factories, represent at least a sixth of the total capital invested in manufacturing, employ nearly a third of all the factory hands, and have an output that is calculated at 442,000,000 mil-reis, or roughly one-seventh of the total value of manufactured articles. Woolen mills rank next in importance in the textile industries, followed by jute mills and silk mills, the latter truly an infant industry in Brazil, but the object of special governmental encouragement.

The milling and refining of sugar, the oldest industry of Brazil, is still today one of the most important. Not only does this industry supply the domestic needs of the entire country, but it furnishes a surplus of between one and two hundred thousand metric tons annually for export. About two-thirds of the total export product is the white sugar, the rest being Demerara and brown sugar. Closely allied to the sugar milling and indeed generally an integral part of that industry is the manufacture of rum or *aguardente* as it is called in Brazil, which industry consumes a very considerable portion of the output of the cane fields. The factories for the treatment of sugar cane are found chiefly in Pernambuco, the state of Rio de Janeiro, and Bahia, though small cane mills are found in almost every portion of Brazil where sugar cane is grown.

One of the chief manufacturing industries of Brazil as regards the value of the output is the preparation of drinks. Breweries and distilleries are the most important, but the preparation of non-alcoholic drinks and the bottling of domestic mineral waters are rapidly assuming real importance. Altogether the output

of the industries engaged in the preparation of drinks is valued at some 300,000,000 milreis annually, or about one-tenth of the total value of manufactured articles.

Next in importance in the value of the output comes preserves, closely followed by boots and shoes, tobacco, hats, furniture, and a large number of other articles making up a total of 25 principal products of the national manufacturing industries.

Mention should also be made of some other forms of industry which, though not ordinarily classed as manufacturing industries, play an important part in the domestic economy. These are the products of the major public utilities in the cities, furnishing water, electricity for lighting, power and traction, and gas.

Finally, reference should be made also to an industry which, though at present almost negligible so far as actual production is concerned, is the object of special concern on the part of the government, and seems destined, because of its basic importance and the favorable conditions for its development, to take its place among the important industries of the country in the near future. That is the iron and steel industry, long neglected by the national authorities and up to the present almost undeveloped.

As has been pointed out in an earlier chapter, the iron exists in inexhaustible quantities, coke and charcoal are obtainable from the known supplies, all of the other ingredients necessary for the manufacture of the best steel and iron products are available within the country, and unlimited water power awaits harnessing for the supplying of electric furnaces. What is needed above all is capital and expert direction.

In 1922 there was inaugurated with considerable

ceremony the first important enterprise, in Riberão Preto in the state of São Paulo, employing electric furnaces for the manufacture of steel, and the output of this plant, though small, has served to demonstrate the possibilities in this direction. In 1920 the national government entered into a contract with the Itabira Iron Ore Company for the exploitation of the enormous iron deposits of the Itabira region in Minas, by which the said company agreed to provide necessary port and harbor facilities at the nearest port in the state of Espírito Santo, the necessary railway construction for connecting the iron districts with the port, and the iron and steel work necessary for the manufacture within the country of at least 150,000 tons a year of bars, plates, beams, rails, and other iron and steel products required by the government.

The main purpose of this undertaking was to make Brazil independent of foreign sources of steel and iron products, now practically entirely imported, especially with reference to the needs of national defense. But it was intended also to insure an adequate supply of domestic iron and steel products for construction and manufacturing purposes for the development of the country. Difficulties of one kind and another have interfered with the actual carrying out of this promising undertaking, but the execution of this proposal, or of one along similar lines, is one of the most immediate concerns of the government. The utilization of the unexcelled natural resources of Brazil for the development of the basic iron and steel industry is at the same time one of the most pressing as well as one of the most promising of developments in the national economy of the country.

CHAPTER XI

TRANSPORTATION

No single factor is of more importance in the economic development and well-being of a country than transportation. There may be unlimited areas of the richest sort of agricultural, forest, and mining lands. There may be an abundance of capital and an adequate supply of labor, with plenty of coal and other fuel, or easily harnessed water power. And yet, if transportation is undeveloped, all of these favorable conditions will be insufficient to develop agriculture and industry beyond the rudimentary stage of purely local activities. With the indispensable transportation factor lacking, or only imperfectly developed, there is no stimulus to the production of a surplus of any form of goods beyond the most restricted local needs, and there can be no development of commerce, either internal or with foreign countries.

In certain respects Brazil is unusually favored in the matter of transportation facilities. The two thousand miles or more of Atlantic coast line from Recife south afford many excellent harbors for both foreign and coast-wise trade, and the thousands of miles of navigable waters within the country offer splendid natural highways of internal transportation. On the other hand, these natural advantages are offset and probably more than offset by certain disadvantages resulting from the character of the country. Immediately adjacent to the ocean harbors there is, as we have

seen, a comparatively narrow strip of low-lying coastal plain, presenting remarkable agricultural opportunities it is true, but making transportation to the seaports difficult even for those short stretches because of the excessive rainfall. The construction of highways is a difficult and expensive task, and their maintenance, in the face of torrential rains and exuberant vegetation, requires a heavy financial charge.

Back of this narrow coastal strip, in places eliminating it altogether, rises abruptly the backbone of the almost unbroken maritime or coastal range, guarding the eastern approach to the great central plateau. This natural obstruction necessitates in most places an ascent of from 2,500 to 3,000 feet, frequently almost straight up from sea level. Under the conditions of rainfall existing on the eastern ascent to these heights the construction of highways, and later of railroads, presented the most serious obstacles, and explains why population in Brazil was for so many decades and even centuries confined almost wholly to the littoral.

In the great basin of the Amazon, moreover, where the network of mighty streams affords unexcelled opportunities for river transportation, thousands of square miles adjacent to the river beds proper are subject to annual inundations, making it all but impossible to construct highways or to build railways connecting the rivers with the interior country. Only a relatively small stretch of country in the neighborhood of these great rivers is, therefore, in a position to profit appreciably from the transportation facilities offered, for even back of the inundated areas the impenetrable tropical jungle makes the building and maintenance of highways a task, the cost of which

could in no way be borne by the commerce which would use them.

Once on the great central plateau of Brazil, conditions are not quite so difficult for the construction of highways and railroads, though the alternation of the excessively dry seasons with seasons of torrential rains presents problems of construction and upkeep not encountered in regions exhibiting less pronounced extremes in this regard, while the river valleys that cut deep down into this plateau in all directions and conduct rivers that regularly swell to torrential proportions make bridge building an unusually difficult and expensive task. It is perhaps in the sole matter of not presenting the difficulties incident to freezing temperatures that Brazil offers any compensating features in the matter of road and railway construction.

These preliminary considerations will perhaps serve to explain in part why in the fundamental matter of transportation facilities Brazil is still so strikingly deficient. The neighboring country of Argentina, for instance, with one-third of the area and less than one-third of the population of Brazil, has 4,000 miles more of railways than Brazil, though construction began in the two countries in the same year. But in the Argentine, railway construction, in contrast to the Brazilian conditions noted above, involved little more than the laying down of ties and rails on the gently rolling pampas that stretch from the vast interior clear down to the eastern seaports.

Although the transportation facilities of Brazil are, therefore, in a relatively undeveloped state, what has already been accomplished is deserving of brief consideration in a study such as this, the subject being the more interesting because of the serious difficulties

that have been encountered. Some attention will, therefore, be devoted to the three main classes of transportation facilities, railways, steamship routes, and highways.

Railroads

Although the first steam railway was opened to traffic in Brazil in 1854, the history of railway legislation in that country goes back almost twenty years farther, to the enactment of the law of October 31, 1835, by which the government was authorized to grant concessions for the construction of railways to unite the capital of the empire with the capitals of the provinces of Minas Geraes, Rio Grande do Sul, and Bahia. This law stipulated a 40-year franchise, with the right of the government at the end of that period either to purchase the properties at a fair price or to extend the franchise for another 40 years, at the end of which second period all the properties were to accrue to the government in good condition without compensation. The government agreed to concede without charge any necessary properties belonging to the government and gave the companies the right of eminent domain over private property necessary for their purposes. For the first five years all necessary machinery and materials of iron were to be relieved of import duties, and the companies were empowered to use any existing highways for construction, provided they built a corresponding road open to free travel. Maximum passenger and freight rates were fixed, a period of two years stipulated for the beginning of construction, and a minimum of five leagues (15 miles) of construction each year required.

This first official attempt at encouragement of rail-

way construction in Brazil is interesting, not because it resulted in any actual operations, but precisely because, though it remained on the statute books for eighteen years, not one mile of railway was ever laid under its provisions. An Englishman, Thomas Cochrane, it is true, applied in 1839 for a franchise under the provisions of this law. The franchise was granted in 1840 and a company was organized by him to construct a railroad from Rio de Janeiro up over the Serra do Mar. But by this time railway construction was enjoying a tremendous boom throughout the world, and other governments, such as Russia and Great Britain in India, were offering very much more attractive concessions and no foreign capital could be induced to come in under the provisions of the Brazilian law. The province of São Paulo in 1836 and 1838 had likewise made provision for railway franchises on a plan similar to that offered by the imperial government, but likewise without success.

As it had become a current practice in other countries seeking railway development to guarantee minimum returns to companies undertaking construction and operation of railways, Brazil could not hope to attract the necessary capital under the terms of the original law. Cochrane himself, having been unable to secure the necessary financial backing under the original terms, applied in 1848 for such a guaranty of interest on the invested capital. But, though the council of state recommended favorable action, the chamber of deputies failed to approve and the proposal fell through, with the resultant failure of any initiative at all under the original law.

Dom Pedro II was greatly concerned over the inauguration of railway service in Brazil, and as it had

become quite apparent that no capital could be attracted to the very difficult conditions that confronted railway construction in Brazil without the guaranty of minimum returns, the imperial government was constrained to alter the original law, which had proven wholly barren in practice, and to adopt the principle of guaranteed interest. This was done in the law of June 26, 1852. As in the case of the extensive privileges extended to railway companies in the United States in the great boom era of railway building, much criticism has developed in later years of this system of government subsidy in Brazil. But there, as here, the vociferous critics lose sight of the fundamental fact that these privileges were an absolute condition precedent to any railway building at all, given the circumstances at that time.

The law of 1852 amplified most of the privileges conceded to companies under the earlier law, lengthened the term of the franchise to 90 years, conditioned the maximum rates on costs of operation instead of fixing definite sums, and established a zone of 15 miles on either side of the road within which no competing lines could be built. But more important than all of these provisions was the guaranty by the government of interest up to 5 per cent of the capital employed in construction, without limitation. If and when the profits of operation became higher than 8 per cent, the government was to be reimbursed for payments in guaranty of interest, on a basis to be fixed in each individual case. More freedom was accorded the government in establishing the other conditions of the franchises, but the companies were forbidden to own slaves and the government was assured the right of inspection. Under the terms of this law

the government was in a position to attract capital to railway construction in Brazil on terms of equality with the opportunities offered elsewhere.

Curiously enough, however, the first actual railway building was undertaken prior to the enactment of this law and carried through without reference to its provisions. On April 27, 1852, the province of Rio de Janeiro granted a franchise to Irineu Evangelista de Sousa, later the Viscount of Mauá, to construct a railway from Mauá at the head of Guanabara Bay to the foot of the Serra do Mar just below Petropolis, the summer residence of the court, a distance of about ten miles. The company was also granted a franchise to run steamers between Rio de Janeiro and Mauá, the ascent of the mountains to Petropolis being by carriage road. On April 30, 1854, amid splendid ceremonies presided over by Dom Pedro II himself, this first line of Brazilian railway was opened up to traffic, with a gauge of 1.676 meters or about 5½ feet.

The first franchises granted under the provisions of the law of 1852 were for railroads from Recife to Palmares in Pernambuco (125 kilometers), from Santos to Jundiahy in São Paulo (139 kilometers), from São Salvador to Alagoinhas in Bahia (124 kilometers), and from the imperial capital up the Serra do Mar to the Parahyba River Valley on the other side. The provinces of Bahia, Rio de Janeiro, Pernambuco, and São Paulo, in which these four lines were to be constructed, had guaranteed a supplementary return of 2 per cent in addition to the 5 per cent which the imperial government was authorized to guarantee under the law of 1852, and it was because of this additional attraction that British capital was induced to undertake the construction of the four lines

in question. But the financial crisis in Great Britain resulting from the Crimean War prejudiced the undertaking somewhat, especially as regards the line from the capital over the Serra do Mar.

The first stretch of the Pernambuco line was opened to traffic in February, 1858 (31 kilometers), of the Bahia line in June, 1860 (14 kilometers), and of the São Paulo line in 1867. The road from the capital northwest up the mountains was granted to a British company which was unable to secure the necessary capital, so the government, extremely desirous of inaugurating this line, decided to begin its construction at government expense, and in 1855 entered into a contract with one Edward Price for the building of the first 37½ miles at a fixed price. The government reserved the right to transfer its contract to a private company whenever any could be found to assume it, and this was done in the same year, the railway being known as the Dom Pedro II. The first stretch of 48 kilometers was opened to traffic in March, 1858, and in November of the same year service was extended to Belém, some 62 kilometers from the capital, interest at 7 per cent being guaranteed on all capital actually employed during construction and during the initial period of operation. Two American engineers, Andrew and William Ellison, were engaged to direct the difficult feat of climbing the Serra, which was not accomplished until 1863. In July, 1865, the Dom Pedro II railway was taken over directly by the government, 133 kilometers being then in operation, and became the Central do Brasil, the chief unit in the government owned and operated lines today. At that time, ten years after the first little ten-mile stretch had been inaugurated, the railways in operation totaled less

than 500 kilometers or a little over 300 miles, the four original lines being all of the broad gauge of 1.6 meters or 5 feet, 2½ inches. But the smaller cost of narrow-gauge construction led to the general adoption for later lines of one meter (3 feet, 3 inches) as the standard gauge, and today more than 90 per cent of the railway mileage is of that narrow gauge, only 4.5 per cent being of the original 1.6 meter type. The remaining mileage is of still narrower gauge, some of it as narrow as 2 feet.

The Paraguayan War (1865-1870) and its resultant financial depression seriously retarded the normal development of railways in Brazil, and at the close of 1874, twenty years after the first line was inaugurated, Brazil had only some 1,284 kilometers, or 800 miles, in operation. In addition to the completion of the four original franchises, several new lines were inaugurated by companies securing franchises under the guaranty of returns on capital invested established by the law of 1852, some were extensions by existing companies, and some were constructed under contract with the government.

On February 28, 1874, a new and comprehensive decree was issued dealing in great detail with the whole subject of railway franchises, defining the relative spheres of action of the central and provincial governments, authorizing guaranties of interest up to 7 per cent, permitting subsidies per kilometer of construction and prescribing minutely the conditions to be insisted upon in the granting of franchises or letting of contracts.

In consequence of the more liberal conditions permitted under this legislation, which authorized the government to expend up to 100,000,000 milreis in sub-

ventions and interest guaranties, new railroad undertakings were greatly stimulated, the while existing contracts were being pushed with new vigor as a result of the return of more normal conditions after the Paraguayan War.

In the very year in which this law became effective five new franchises were granted by the central government under the terms of this law, guaranteeing a return of 7 per cent per annum on the capital invested. Among these new undertakings was the important São Paulo-Rio de Janeiro line, which later became the principal stretch of the government owned and operated Central do Brasil. The individual provinces, moreover, acted more energetically under the powers assigned to them with respect to railways. This increased activity during the next quinquennium (1875-1879) is manifest from the fact that whereas up to the end of 1874, just twenty years after the inauguration of the first stretch of Brazilian railway, a total of 1,284 kilometers (800 miles) was in operation, the next five years saw 1,627 new kilometers opened up, or 25 per cent more than had been completed in the whole of the first twenty years.

From this time on new railway construction increased at a remarkable rate right up to the political revolution of 1889 that replaced the centralized empire with a federal republic. A comprehensive law of 1878, having established in great detail the bases on which railway franchises involving security or guaranty of interest by the government should be granted, the quinquennium of 1880-1884 saw 3,391 kilometers of new roads opened up, considerably more, therefore, than had been put into operation in the entire quarter of a century before that. In the single year of

1884 nearly a thousand kilometers of railways were put into operation.

This rapid development continued unabated during the next quinquennium, for although the revolution of November, 1889, interrupted operations to such an extent that only 262 kilometers were added that year, as compared with 921 in the year preceding, the total for the quinquennium 1884-1889 was 3,281 kilometers of new road opened to traffic, making a total railway mileage in operation at the close of the period of the empire of 9,583 kilometers, or almost 6,000 miles. This mileage represented chiefly isolated stretches in 14 of the then provinces, the provinces of Amazonas, Maranhão, and Piauhy in the north, Matto Grosso and Goyaz in the west, and the little province of Sergipe on the east coast being the only ones without some railway mileage.

When the federal republic supplanted the centralized empire in 1889, the new constitution provided that the rights of the union and of the states to legislate on railways and internal navigation should be regulated by federal law (Art. 13). This meant, of course, that under the new system, as under the old, it was the central government that determined the conditions under which railways should be constructed and operated. The comprehensive law governing the relationship of union and states in this regard was enacted by the first Congress in 1892 (Law number 109), and has not been altered in important particulars since that time.

But before ever the new constitution was framed, the provisional government by a decree of October 16, 1890, manifested its interest in the construction of additional railway lines to open up new territory and

establish better communications between the different portions of the country. By this decree new lines were authorized at once to extend into the far interior of Goyaz and Matto Grosso and connect up with existing lines of railways or with convenient river navigation. The farseeing and ambitious program of the provisional government, still based on the principle of guaranty of interest payments, was destined to fail almost completely of execution. And yet, in spite of the disturbed condition of the country, seriously disrupted, as has been pointed out in an earlier chapter, by the naval revolt of 1893 and the revolution in Rio Grande do Sul, there were opened up to traffic in the five years 1890-1894 another 2,677 kilometers of new road, a good part of which was the result of construction financed by the government itself.

In the next quinquennium, 1895-1899, another 2,655 kilometers were opened up to traffic, bringing the total length of railways in Brazil at the close of the last century up to 14,915 kilometers or 9,322 miles. But serious economic conditions developed during this period which interrupted almost completely the initiation of new projects. Brazil, it will be remembered, passed at this time through the most serious financial crisis of its history. Government bonds tumbled on the market, the exchange value of the milreis fell from 57 cents in 1889 to 12 cents in 1898, and the government was at its wit's ends to find money for the absolutely indispensable activities.

Under those conditions, naturally, construction work on the government projects stopped altogether. Moreover, the government was in no financial position to concede further franchises involving guaranties of interest payments. In the eighteen months of the

provisional government's administration half a dozen franchises had been granted on that basis, but after that the federal government and the states entered upon a policy of direct government construction. Most serious, however, was the severe drain upon the federal treasury resulting from the payments due under the guaranty clauses of the earlier franchises.

Of the numerous roads operating under this guaranty plan only one had proved financially so successful as to dispense with the government aid, the São Paulo Railway from Santos to Jundiahy. Of the rest, practically all had to be paid greater or less sums out of the federal treasury. In the case of the government subventions per mile of construction, no adequate provision had been made to insure that the road follow the most direct line, the only concern of the companies being to pick the easiest and cheapest terrain, as the subsidy was a flat rate per mile. In the case of construction by contract for the government, the roads were in many cases so poorly constructed as to require great additional outlays by the government on taking over the lines. And in the case of the guaranteed interest payments due from the government under the franchises, these had to be paid in gold in the great majority of cases.

At the time when the franchises were granted this feature of the government obligations was not of appreciable importance, for the finances of the country were on a gold basis. But with the enormous issues of unsecured paper money and the consequent drop in the exchange value of the circulating medium, the drain upon the treasury to meet these obligations in gold became increasingly serious and aroused the greatest criticism of the system of guaranty of interest pay-

ments. Confronted with this disastrous situation, therefore, the government determined to exercise its right of purchase of all the lines operating under the gold guaranty franchises, raising the necessary money by the issue of government bonds, the interest on which would be payable in the circulating medium instead of in gold.

Whatever may have been the theoretical advantage, not to say necessity, of this measure in view of the exchange situation, in its practical execution it proved to be a very expensive operation for the government. But, however expensive, it became the fixed policy of the government to follow out this line from this time forward, and a considerable number of franchises were thus canceled and the properties bought in by the federal government and the states, to be operated either directly by the government or leased to private companies. In the matter of new construction, the federal government in 1903 definitely adopted the policy of financing by the government by means of contracts awarded to the lowest bidders, a sound enough policy had it been properly safeguarded in its actual application.

The disastrous effect of the financial crisis through which the country was passing at the close of the last century was clearly reflected in the figures of new mileage opened up to traffic in the first years of the present century. In 1901 only 190 kilometers were opened up, in 1902 even less, 174 kilometers, and the total for the quinquennium 1901-1905 was only 1,865 kilometers, much less than for any equal period since 1880. But the improved financial condition of the country under the succeeding administrations of Presidents Rodrigues Alves and Affonso Penna were again clearly re-

flected in the new railway mileage opened up to traffic. In the quinquennium 1906-1910 a total of 4,686 kilometers was opened to traffic, the maximum ever attained for an equal period, and in the period 1911-1915 even this peak was exceeded by the inauguration of 5,180 kilometers of new lines. The next five years inevitably reflected the detrimental effects of the World War, the extent of new lines opened up for traffic during that five-year period being only 1,907 kilometers. The financial conditions since the close of the war have been even more unfavorable to new construction, and since 1921 very little has been possible in the way of opening up new lines for operation, though more than 3,410 kilometers were under construction at the end of the year and over 7,145 kilometers had been surveyed and plans for their construction officially approved.

This rapid survey of railway construction in Brazil brings us to the close of the first century of the country's independence. The total number of miles in operation was 18,000 (28,819 kilometers). Of this total the federal government owned almost 10,000 miles, or well over one-half of the total. Of the mileage owned by the federal government, almost exactly one-half was operated by the government itself, the other half being leased out to private corporations or to the states themselves. Some 1,500 miles belong to the state governments and some 6,500 miles to private corporations operating either under state or federal franchises, or both. In recent years, as has been noted, the extent of the privately owned lines has been decreasing in favor of the government owned lines, owing to the double policy of purchase by the government of lines operating under the interest guaranty and of construc-

tion of new lines by government contracts, though some of the existing private lines have increased their extent by subsequent grants. With but one exception, none of the railroads are really prosperous.

A glance at a railroad map of Brazil will disclose some striking characteristics of the situation in that country. Of the total of 18,000 miles in operation, which, though a very considerable mileage considered absolutely, is very small considered relatively to the geographical extent of the country (the United States with a smaller area has over 250,000 miles) over half of it is concentrated in the three central states of Rio de Janeiro, São Paulo, and Minas Geraes. Only in this region is it possible to speak of a network of railways, as the mileage in the rest of the states consists largely either of several small lines converging to a common seaport center, or of single lines more or less unconnected with the remainder of the railways. The following table shows the distribution of railway mileage in the different states, ranked in descending order of extent. (See page 380.)

Of the more than fifty different railway lines in the country there are a dozen that have an extension greater than 1,000 kilometers (621 miles), and nine of these have a mileage of 1,000 miles or more. The chief lines, from the point of view of mileage, are the Leopoldina, a British corporation, with 2,946 kilometers in operation; the nationally owned and operated Estrada de Ferro Central do Brasil with 2,439 kilometers; the Rio Grande do Sul system, owned by the national government but leased out for operation, with 2,253 kilometers; the Bahiana system, likewise owned by the federal government and leased out for operation, with 1,934 kilometers; the Mogyana, a Brazilian corpora-

<i>State</i>	<i>Kilometers in Operation</i>	<i>Miles in Operation</i>
Minas Geraes	6,751	4,220
São Paulo	6,694	4,184
Rio Grande do Sul.....	2,735	1,709
Rio de Janeiro.....	2,625	1,638
Bahia	1,839	1,149
Matto Grosso	1,167	729
Paraná	1,110	694
Santa Catharina	1,074	671
Ceará	940	588
Pernambuco	832	520
Espirito Santo	611	382
Maranhão	451	282
Parahyba	329	206
Alagoas	327	204
Rio Grande do Norte.....	323	202
Pará	299	187
Sergipe	299	187
Goyaz	204	128
Federal District	174	109
Piauhv	26	16
Amazonas	8	5
Total	28,819	18,051

tion, with 1,923 kilometers; and the São Paulo-Rio Grande system, with 1,897 kilometers in operation.

Although the railways of Brazil have grown up in a more or less haphazard fashion, starting in most instances as short lines intended to connect the back country with the seaports, considerable progress has been made in the avowed plan of the government to connect every one of the twenty states with the federal capital. From Rio de Janeiro there is now continuous rail connection to the south through the states of São Paulo, Paraná, Santa Catharina, and Rio Grande do Sul clear to Uruguay, a distance of 2,633 kilometers to Santa Anna, where direct connection is made with Montevideo. From this trunk line laterals run down to the seaports in all those states. From Nictheroy across the Guanabara Bay from Rio



Marianna—A Colonial Survival in Minas Geraes.

through rail service is in operation to Victoria, capital of Espirito Santo, a distance of 577 kilometers. From Rio de Janeiro to the interior of the country in Minas Geraes continuous rail service exists to Pirapora on the São Francisco River, a distance of 1006 kilometers.

In the north, with São Salvador, capital of Bahia, as a center, and Recife, capital of Pernambuco, as a center, the railways have been extended north and south until only small stretches remain to make a continuous connection along the coast from Espirito Santo clear to Ceará. From São Paulo the first trans-continental line now runs through to Porto Esperanza on the Paraguay River near the Bolivian border, a distance of 1,612 kilometers. This road will ultimately connect up with the Bolivian railway from La Paz and give through rail connection to the Pacific.

Among the immediate plans of the national government in the matter of railway extension is the building of the long projected line of the Central from its present terminus at Pirapora on the São Francisco River straight north to Belém in Pará, a total of 2,190 kilometers. When this is done the entire country will be connected by rail from north to south. Another immediate concern of the government is the extension of the lines north from São Paulo and Rio de Janeiro into Goyaz and west to Cuyabá, thus connecting the capitals of the two far western states of Goyaz and Matto Grosso with the federal capital.

In Brazil, in almost all cases, the railways have had to be built in advance of population as a means of opening up the country. Expensive in construction, and serving vast stretches where there was but little passenger and freight traffic, railways in Brazil, whether constructed and operated by private compa-

nies or by the state and national governments, have had a difficult time. Even with relatively high rates they have been unable in many cases to pay operating expenses alone, to say nothing of interest and sinking fund charges on the capital invested. Even the Central of Brazil, though serving some of the most densely populated portions of the country, and handling the heavy traffic between Rio de Janeiro and São Paulo, has shown consistent deficits, though it is commonly stated that if the system were leased to private management for operation instead of being administered directly by the government, it could be made to yield a net revenue both to the government and to the lessees.

In view of the difficulties presented in Brazil in the matter of new construction and the expense of operating most of the existing lines, and in view of the fundamental importance to the country of rapidly extending the railway system for reasons of national development, economically and politically, to say nothing of considerations of national defense, it seems that the avowed policy of the government to bring more and more of the existing lines under national ownership and to provide for extensions out of the national treasury presents the only solution to this great problem. The Brazilians themselves are for the most part fully conscious of the inevitable defects of government ownership, but their experience with privately owned lines, and even with lines owned by the government and leased out for operation has not been by any means encouraging, so that they are confronted with what seems the selection of the lesser of two evils. Gradually, of course, with the increase of population and the consequent growth of traffic, railroads will be built and operated at reasonable rates with a reason-

able return in all parts of the country. But that time is still a long way off. Meanwhile the cost of the needed extensions and improvements will have to be borne out of the public treasury in one form or another, and the opening up of the interior be charged to the account of the country as a whole instead of to the regions more immediately benefited.

Steamship Routes

In discussing the place of steamship transportation in Brazil, nothing need be said of the numerous steamship lines that run from Brazil to foreign countries, for although there are a number of such lines which in addition to connecting Brazil with all portions of the world afford transportation facilities also between various Brazilian coastal points that are regular ports of call, they do not constitute, strictly speaking, a part of the system of national communications.

Settled as Brazil originally was, along the Atlantic seaboard within easy reach of the many harbors that dotted the southern portion of the coast, transportation and communications between the different parts of the country were from the first almost entirely by ships. Even in the days before steamships were invented, with all the delays and dangers incident to navigation by sailing vessels due to storms and tides and hidden rocks, to say nothing of corsairs and freebooters of all nations, it was easier to go by sailing vessel from one captaincy or province to another than to travel through the tropical forests and marshes of the low-lying littoral, subject to attacks by fevers and hostile Indians. The importance assumed by ships as a means of national intercommunication in colonial Brazil has never been surrendered down to the present

day, even since the construction of steam railroads as sketched in the preceding section.

Indeed, when the comparatively safe and rapid steamship replaced the dangerous and deliberate sailing vessel, which development began in Brazil in 1837, communication between the seaboard provinces of Brazil by water improved enormously. Of all the twenty provinces of the empire only three, Minas Geraes, Goyaz, and Matto Grosso, had no direct access to the sea, for Amazonas, though without an Atlantic coast line, was served by the mighty Amazon, itself almost an inland sea and offering a splendid highway for ocean-going ships from the rest of Brazil. These unusual facilities for intercommunication of various parts of Brazil along a stretch of thousands of miles, proved, of course, of the greatest benefit in connecting up the vast seaboard regions of the country. But it must not be overlooked that this relatively cheap means of communication had some effect in retarding the development of land communications, whether by highway or by railroad, except as feeders to the maritime traffic lines. Expensive railways or highways paralleling the coast line never could and cannot to-day compete as carriers with coastwise steamships in national commerce.

Navigation and its auxiliary activity of ship-building as a national undertaking have had a checkered history in Brazil. Prior to the famous decree of Dom João VI on January 28, 1808, opening up the ports of Brazil to the commerce of the world, not only shipping to Brazil but all water transportation within the country and along its coasts was restricted to Portuguese ships. At the time of the discovery of Brazil, Portugal was the greatest maritime nation of the world, and

though her position as a world naval power soon declined in comparison with other European countries, the naval tradition remained strong for centuries, and in some of the very earliest voyages of discovery along the Brazilian coast Portuguese navigators inaugurated a rudimentary ship-building program in some of the principal ports. But this was only for the purpose of constructing small and indispensable auxiliary craft, communications and commerce between the mother country and colonial Brazil being carried on in ships built in Portugal, owned by Portuguese, and manned by Portuguese.

Although Brazilian ports were opened up to international trade by the decree of 1808, coastwise navigation was restricted to Portuguese ships, and as Portugal herself was no longer in a position to construct ships for that purpose, Brazilian ship-building received a great impetus in the early years of the nineteenth century. With the declaration of Brazilian independence in 1822, coastwise and river navigation was restricted to national ships, which had already served a very useful purpose in aiding the new state in expelling the Portuguese garrisons in the several seaports in which they were stationed at the time of the declaration of independence. All during the era of wooden sailing ships, Brazil, unusually favored not merely by reason of her maritime traditions and the absolutely essential character of a well-developed system of water communications, but also by an abundant and easily accessible supply of timber, developed a considerable merchant marine.

But when the era of steamboat navigation began, and particularly when iron and steel ships began to replace the wooden vessels, Brazilian ship-building

and navigation suffered a serious setback. Though the supply of wood for fuel was plentiful and was easily accessible along the banks of the rivers, coal was not known to exist in the country and coal was a necessary fuel for the longer journeys along the coasts. Iron, moreover, though, as we have seen, discovered at an early date and existing in unlimited amounts, was not accessible and has not to this day been developed commercially for ship-building purposes. In spite of these handicaps, however, the Brazilian merchant marine continued to develop until 1864, as coastwise and river navigation continued to be restricted to national ships.

In that year, however, coastwise shipping was opened up to foreign vessels as well, and ship-building and navigation all but disappeared as national undertakings in the face of foreign competition, in spite of government subventions offered for the construction and navigation of Brazilian ships. As a result of the commercial treaties entered into by Brazil early in her independent history with other nations, in return for the recognition of her independence, her nationals never could secure a foothold in the trans-oceanic field.

With the overthrow of the empire and the establishment of the federal republic in 1889, coastwise and river navigation was again restricted to Brazilian ships, except in the case of the Amazon, which had been declared an international highway. This furnished a new impetus to ship-building and navigation in Brazil, as the provision in the constitution of 1891 was absolute in terms. But by legislation in the very next year, and by subsequent regulations in 1913, exceptions were permitted whereby foreign ships stopping in two or more Brazilian ports might transport

passengers, baggage, animals, agricultural products, and perishable goods between such ports. In consequence, a considerable coastwise trade is carried by foreign ships particularly between Recife, São Salvador, and Rio de Janeiro, in spite of the prohibition of the constitution.

The coastwise transportation is divided into major and minor services. The major coastwise system, *a grande cabotagem*, connects the capital with the states to the north and to the south, a distance from Rio de Janeiro of 3,258 miles clear up the Amazon to Manáos in the north, and of 935 miles to Porto Alegre in the south, a total stretch of over 4,000 miles, therefore, providing regular service between all the major ports of the country. The minor system, *a pequena cabotagem*, is divided into a number of minor groups connecting the various ports within a given state or in adjoining states, with centers in Maranhão, Pernambuco, Bahia, and Rio de Janeiro.

This coastwise service is conducted by ten principal lines, all of which enjoy some special favors or subventions at the hands of the national and state governments, their ships and crews constituting in return a reserve force of the national navy. The most important of these companies is the *Lloyd Brasileiro*, a corporation in which the national government owns a majority of the stock, and which is administered by a board of directors appointed by the president. This government undertaking possesses some hundred vessels, with a total tonnage of more than 150,000 gross tons, constituting the largest merchant marine in South America, the German ships confiscated by Brazil in anticipation of her entry into the World War having augmented its tonnage by more than 50 per

cent in 1917, chiefly in regard to ships of larger tonnage. The Lloyd Brasileiro engages not merely in coastwise trade, but also maintains a regular line to the United States, and for a time inaugurated regular service to Europe, besides running ships on the Paraguay and Amazon Rivers. It occupies a fundamental position in the system of national waterways, therefore, and also constitutes an important potential auxiliary to the Brazilian navy. But ever since its organization in 1890 it has been a source of considerable expense to the government, and its management has been a continuous source of difficulties.

Next in importance is the Lloyd Nacional, a private corporation also enjoying government subventions and privileges, founded in 1916 and engaged in international, coastwise, and river traffic. A third important company is the Companhia Nacional de Navegação Costeira, possessing a large fleet of passenger and freight steamers maintaining regular service north and south out of Rio de Janeiro. Taken all in all, the coastwise service connecting the seventeen maritime states of Brazil from Amazonas on the north—which, though without an Atlantic coast line is virtually a maritime state because ocean-going steamships of deep draft regularly proceed to Manáos, the capital—to Rio Grande do Sul on the south, employs 157 steamships of more than 130,000 gross tons, aside from sailing vessels and barges. This represents, therefore, an astonishingly well-developed transportation service, and makes up in large part for the lack of other means of communications between these widely separated regions. But freight rates are for the most part excessively high, compared with ocean freight rates in general, and the passenger accommodations, with

the exception of a few of the newer and larger vessels, are so inferior that Brazilians themselves, when traveling between the ports served by foreign steamship lines, usually prefer to pay the somewhat higher tariffs charged by the palatial steamers of the various English, French, Dutch, German, and Italian lines that afford transportation between Rio de Janeiro and Bahia and Pernambuco to the north.

River transportation is most fully developed on the Amazon and its tributaries, though there are fifteen principal steamship lines serving parts of other rivers, notably the São Francisco, the Paraná, and Paraguay Rivers. The total number of vessels engaged in river navigation in Brazil in 1921 amounted to 356, but the total tonnage was only 73,387. In the state of Rio Grande do Sul, on the great island lake Lagoa dos Patos, a considerable number of vessels are regularly engaged in transportation. The total number of Brazilian steamships in the merchant marine, engaged in all branches of transportation, amounted in 1921 to 752, with a gross tonnage of 536,431 tons, with some 608 additional sailing ships of a total tonnage of 28,210 more.

In the Amazon Basin, with its thousands of miles of navigable streams, river transportation is bound for a great many years to come to constitute the chief means of communication and transportation, especially as railway construction is very difficult and must be undertaken at a great loss in advance of population and traffic needs. Between the principal seaports of the long stretch of Atlantic coast, likewise, shipping will always be a more important means of communication than any system of railways that could be built. But in the vast interior of the great Brazilian plateau,

though a great many of the streams afford many miles of waterways, they are for the most part so broken by rapids and falls that frequent transshipment is required for anything more than local traffic. Here the future of means of communication and transportation rests with the railway, connecting up so far as possible with the navigable stretches of the rivers, and the opening up of the great western areas of Goyaz and Matto Grosso and linking them up with the eastern part of the country is almost wholly dependent on the railway.

Highways

Until a very few years ago an account of good roads in Brazil would have read much like a disquisition on snakes in Ireland, for the simple statement, "there are no good roads," would have been accurate and complete. Even today no more striking characterization of the highway situation in Brazil need be sought than the bald statement that there is in existence no surfaced highway connecting the federal capital Rio de Janeiro with the interior of the country. It is only fair to add at the outset, however, that if this almost incredible lack of highway facilities near the capital of the country epitomizes somewhat dramatically the general situation in Brazil, the definite inauguration in 1922 of construction work on a hard surface road leading from Rio de Janeiro to Petropolis, at the crest of the coastal range, evidences in an equally striking way the new attitude that is now developing in respect to good roads in Brazil. The national government being at the time in the throes of a painful but inescapable economy, the funds for this pressing public improvement were secured by private subscription

backed by the efforts of the automobile club of Rio de Janeiro.

In other ways than in the actual undertaking of a badly needed but long delayed highway project, this particular example is of significance. It illustrates first of all some of the difficulties that have caused Brazil to lag so far behind in highway construction. It affords an example of the interesting fact that in general throughout Brazil the construction of railways has resulted in the deterioration of existing highway facilities where these were paralleled by the railway. And in the third place it illustrates the fundamental rôle played by the popularization of the automobile in the last ten years in the good roads movement.

With respect to the unusual obstacles presented in Brazil to the construction of good roads, mention has already been made of the principal factors in the discussion of railway construction. Everywhere the southeastern seacoast of Brazil, the main center of population for decades and even centuries after the first settlement, is shut off from the interior plateau by the almost continuous barrier of the coastal mountains. Steep ascents combined with regular rainy seasons characterized by torrential downpours presented engineering difficulties of the greatest magnitude, coupled with staggering costs of upkeep. The building of a road fifteen feet wide, bedded with rock, and marked by grades and curves which no modern automobile could consider, in late colonial times from Santos on the sea to São Paulo on the plains of Ypiranga, was a noteworthy achievement and was commemorated by a tablet in 1790. In 1845 a coach road was built to Petropolis from the eastern base of the

coastal range which provided access to the imperial summer residence, and this was likewise hailed, and properly so, as a real achievement. A few years later, in 1851, a macadamized road 25 feet in width was constructed from Petropolis on to Juiz de Fora in the state of Minas Geraes, the first big highway project in Brazil.

But with these rare exceptions, road building was not attempted because of the almost insuperable difficulties encountered and the expense involved. The highways, so-called, over which the difficult system of communication was maintained, were little more than trails or paths, passable under favorable conditions for ox-carts or heavy coaches, but in many cases, and in almost all cases for many months in each year, passable only for horses or mules, if at all. Once the serra was ascended, some of the difficulties of road construction disappeared, but even here the rainy season turned the roads into stream beds, while in the flooded sections of the Amazon Basin, water and vegetation alike precluded the possibility of anything more than forest trails.

The second peculiarity of the history of highways in Brazil is exemplified in a number of the former main roads which when paralleled by the railways fell altogether into disuse and decay. This occurred in the case of the roads already mentioned, from Santos to São Paulo, Rio de Janeiro to Petropolis, and Petropolis to Juiz de Fora, as well as in many other instances.

The third outstanding feature of the road situation in Brazil, namely the revolutionizing effect of the automobile, is a familiar phenomenon in the United States, where the automobile has transformed the whole high-

way situation in city and country alike. Though Brazil surrendered to the era of automobiles much more slowly and much less completely, it is equally true that the present movement for good roads is the immediate consequence of the introduction of the motor car.

In this new development, which may be said to date from the first good roads congress held in 1917, the state of São Paulo has led the way. In 1908 the first interest in a good roads movement had been aroused by the earliest attempt ever made to go by motor car from Rio de Janeiro to São Paulo. In the same year the first descent of the serra from São Paulo to Santos was made by motor car, requiring more than 24 hours to cover a distance of 40 miles, part of the trail being cleared by dynamite. This marked the beginning of the efforts of the Automobile Club of São Paulo to secure highways in that state suited to automobile traffic.

At the first good roads congress, sponsored by the government of the state itself, a good roads association was formed, *A Associação de Estradas de Rodagem*, which publishes a monthly good roads journal known as the *A Estrada de Rodagem*, carries on active propaganda for better roads, demonstrates practical road construction with its own machinery and crews, and in general performs the functions of the well-known automobile clubs in the United States. Three congresses have already been held and an automobile show staged which have contributed to a remarkable awakening in Brazil to the importance of highway transportation and communications.

Five years ago there were virtually no first class auto roads in São Paulo outside of the cities. Today there are over 1,000 kilometers and a definite program

is under way to link up the capital, São Paulo, not only with the port of Santos as it now is, but with the neighboring states of Paraná to the south, Matto Grosso to the west, Minas Geraes to the north, and Rio de Janeiro to the east. Work on these four trunk lines is being steadily pushed by the state government with the coöperation of the good roads association.

The example of São Paulo has stimulated similar interest in other states, leading directly to the undertaking mentioned above connecting Rio de Janeiro by auto road with Petropolis. At several points in the country auto busses are already being operated regularly in connection with railways, steadily extending the line of communications and adding more impetus to the movement for good roads. In the face of a ruinous exchange rate, making the cost of American automobiles three times as high in terms of milreis as they would be with exchange at par, as is true also with regard to tires and all accessories, and in the face of fabulous prices charged for gasoline and oils, all of which have to be imported into the country, the importation of automobiles in 1922 was three times as great as in 1921. With the return of normal exchange conditions and the possible substitution of alcohol for gasoline as fuel, an era of automobile expansion will be ushered in which will profoundly alter the road map of Brazil in a very few years.

CHAPTER XII

FOREIGN COMMERCE

IN our examination of Brazil so far, we have considered from a variety of angles the physiography of the country, its natural resources, the character of its population, and the activities of that population in agriculture, manufacturing, and transportation. To complete the picture of the economic conditions of Brazil today, in contrast with the conditions during the period of development, something remains to be said about the foreign commerce of the country. For after all it is the foreign commerce, potential or actual, of a nation with which other nations are more likely to be concerned, than with any other phase of its activity. As an actual or potential source of raw materials and foodstuffs such a country is of vital interest to manufacturing and industrial nations not self-sustaining in respect to raw materials and food. As an importer of manufactured articles such a country becomes important as a market for all industrial nations.

The foreign commerce of a nation, particularly of an economically undeveloped nation, is very likely, therefore, to stand in an intimate relation of action and reaction with its international contacts and relations, aside from having a fundamental importance in its internal politics and finances. This has been strikingly true of Brazil, and a rapid survey of the develop-

ment and present status of the foreign commerce of the country will inevitably shed some light on some of these related topics as well.

Foreign Commerce of Colonial Brazil

Of the foreign commerce of Brazil during practically the whole of the colonial period little need be said. As a matter of fact, little can be said, except in a most general way, for of accurate statistics there were practically none. It is known that sugar early played an important part in the exports of the colony, the first money crop ever raised in Brazil. Brazilwood and other dyewoods were the natural products that first attracted not only Portuguese traders but those of other nations as well to Brazil, and gave the first incentive to the repeated efforts of France to secure a foothold in the country. But it was not long before the agricultural products, especially sugar and tobacco, constituted the principal exports from the colony.

Under the system of commercial monopoly, practiced by all the colonizing powers from the beginning of the sixteenth century on, no commercial intercourse was permitted between Brazil and the ports of any other nation except Portugal. Though Brazilian sugar and tobacco supplied the markets of the whole of Europe for many years, the entire supply of these and other commodities had to pass through designated ports in Portugal, where government and middle man first levied a heavy tribute. All articles imported into Brazil from Portugal, and that meant practically everything of a manufactured nature except the rudest of articles, for Portugal permitted no industry to flourish, whether agricultural or manu-

facturing, in Brazil, that would compete with undertakings in Portugal, had to pass through one of six designated ports in Brazil, and were distributed from there to the rest of the country.

For a hundred years after the establishment of the governor-generalship in Brazil, in 1548, all commerce between Portugal and her giant colony was carried on by the system of regular fleets convoyed by ships of war. With the termination of the Spanish domination over Portugal in 1640, and the definite cessation of the Dutch attempt at permanent colonization in Brazil, the need for naval convoys largely ceased and a private corporation chartered in Lisbon, in 1649, was granted the monopoly of commerce with Brazil. We have already seen how the abuses practiced by this company led to several serious disturbances in the country, and in 1720 the corporation was dissolved, the earlier convoy system being reestablished.

During the eighteenth century the extraction of gold and diamonds became the chief concern of the government, and although it is not known just how much gold and how many diamonds were sent from Brazil to Portugal in that period, attention was centered on mining rather than on the principal agricultural crops for export, sugar, tobacco, and hides. At the beginning of the nineteenth century the commerce of Brazil with Portugal was estimated at around ten million milreis each of exports and imports. Sugar, cotton, coffee, cocoa, hides, rice, and indigo figured among the principal exports, all burdened with excessive and almost prohibitive imposts. Among the imports, the shameful traffic in negro slaves bulked large. Indeed, this traffic, though later proscribed, continued to be of importance until nearly 1850.

Brazilian Commerce to the World War

With the advent of Dom João VI to Brazil in 1808 a new era was ushered in for Brazilian commerce. The Portuguese monopoly of Brazilian commerce of necessity broke down, and the decree of January 28, 1808, opening the ports of Brazil to the commerce of the world, had the immediate result of placing Great Britain in the most favorable position with regard to the foreign commerce of Brazil, both as to exports and imports, a position which she held securely so far as exports from Brazil were concerned until 1874, and so far as exports to Brazil were concerned until the period of the World War. In return for the material assistance rendered to the fugitive Portuguese Court by Great Britain, special favors were extended to British goods and British ships in the matter of import duties, greater even than those extended to Portuguese goods and ships.

Though the opening of Brazilian ports to the commerce of the world marked the beginning of a new era in the foreign commerce of the country, the demoralized condition of the world market due to the Napoleonic Wars, and the disturbances that upset the tranquillity of Brazil from 1817 until after the definite establishment of the constitution of the independent empire in 1824, resulted in a foreign commerce considerably below the values attained in the last years of the eighteenth century and the first two or three years of the nineteenth. Not until 1825, therefore, with the establishment of normal conditions, did the foreign commerce of Brazil begin to exceed the values attained a quarter of a century before, and from that time on it showed an astonishing progression, inter-

rupted in individual years or even for periods of several years by retrogressions due to unfavorable factors at home or abroad, but when viewed in ten-year periods evidencing a steady increase.

A fairly accurate picture of the development of Brazilian commerce can be obtained from the following summary statement. In 1833-1834 the value of Brazilian exports had attained 33,011,512 milreis, the value of the imports had attained 36,237,411 milreis, and the total value of the foreign commerce 69,248,923, or more than three times as much as at the beginning of the nineteenth century. Taking these figures as units representing 100 for imports, 100 for exports, and 200 for the total, we find the following results typical of the development up to the period of the World War:

<i>Year</i>	<i>Imports</i>	<i>Exports</i>	<i>Total</i>	<i>Ratio to Total of 1833-34</i>
1845-1846	140	163	303	151%
1858-1859	352	323	675	337%
1875-1876	474	542	1,016	508%
1888	720	644	1,364	682%
1898	1,554	1,927	3,481	1,740%
1909	1,636	3,079	4,715	2,358%
1913	2,780	2,975	5,755	2,877%

In other words, in the period of eighty years from 1833 to 1913, the value of Brazilian imports measured in milreis had increased almost 28 fold, the value of exports almost 30 fold, and the total value of the foreign commerce almost 29 fold.

If instead of selecting individual years for comparison with the year 1833-1834, we take the ten-year period 1833-1843 as a standard, in which the total value of imports was 446,299,177 milreis, the total value of exports 381,732,991 milreis, and the total

value of all foreign commerce 848,032,168, we obtain the following results expressed in terms of index numbers:

<i>Years</i>	<i>Imports</i>	<i>Exports</i>	<i>Total</i>	<i>Ratio to Total of 1833-43</i>
1843-1853.....	136	150	286	143%
1853-1863.....	240	270	510	255%
1863-1873.....	289	418	707	353%
1873-1883.....	365	529	894	447%
1883-1893.....	536	668	1,204	602%
1893-1903.....	974	1,839	2,813	1,406%
1903-1913.....	1,333	2,266	3,599	1,799%

Now these figures are based on the official estimates in terms of Brazilian milreis. To interpret them as absolute statistics on Brazilian commerce a great many other factors would have to be taken into consideration, such as the difference between official valuation for purpose of duties and valuation based on market price, the fluctuations in the prices of commodities, the fluctuations in the exchange value of the milreis expressed in terms of gold values, etc., all of which factors will be briefly touched upon later in their relation to foreign commerce and particularly to statistics on foreign commerce. But for the single purpose here had in mind in giving these tables, namely to show the astonishing and continual increase in the value of the foreign commerce of Brazil, they may be taken as sufficiently accurate as comparative tables, though even here the steadily mounting prices of commodities, both exports and imports, have accounted for some of this phenomenal increase in values. In other words, had the volume or weight of exports and imports remained just exactly the same during the whole of the period from 1833 to 1913, there would

still have been a very appreciable increase shown in the values.

Another point to be mentioned in connection with these tables is the explanation of the fact that the statistics do not go beyond the year 1913. The reason for this lies in the fact that the World War had such a profound influence on the foreign commerce of Brazil, an influence continuing and even becoming more decisive in the years since the close of the war, that the period since 1914 shows an abrupt break with everything that has gone before. It will, therefore, have to be treated as a distinct epoch in the commercial history of Brazil, though comparison will be interesting in relation to the earlier periods. The year 1913 will therefore be taken as the end of the period of the normal development of Brazilian foreign commerce, and the tendencies manifest at that time will be regarded as normal tendencies, likely to reassert their influence more or less perceptibly if and when economic conditions in the world in general and in Brazil in particular return to a more normal basis.

Finally, it is to be noted from the statistics regarding the total value of exports and imports, that the visible balance of trade has in general been favorable to Brazil; that is, the value of the exports from Brazil has in general exceeded the value of the imports. It is true that the importance of this visible trade balance has in general been overestimated, and too little account has been taken of the invisible factors, such as interest and principal payments on foreign debt, earnings of foreign capital invested in Brazil and distributed abroad, remittances sent home by foreigners residing in Brazil, freight and insurance charges paid to foreign ships, and money spent abroad by Brazil-

ians. Nevertheless, the visible trade balance is an important economic factor, and one that is of real concern to the government.

From 1833 to 1845, it is true, the value of the imports exceeded the value of the exports in every year except one, 1835-1836. Then for a single year the balance was favorable, and again in 1847-1849, after which for five years it was unfavorable. The next three years it was favorable again, and then for four years unfavorable. In 1861, however, the trade balance again became favorable, and so remained for the next twenty-five years, the balance swinging the other way in 1885-1886 and again in 1888. During the two years of the provisional government the balance was again unfavorable, but beginning in 1891 a favorable trade balance was shown uninterruptedly until the very last year of the period under consideration, 1913.

If we turn now from the total value of the exports and imports to the countries of destination and origin, we may note the following facts at different periods with respect to the countries with which the foreign trade of Brazil was carried on. The tables given below show the relative ranks of the various countries at the different periods, measured in the value of imports and exports expressed in units of contos of reis or thousands of milreis, only the leading countries being shown.

These austere and rather dry-looking tables with regard to the ten principal countries from which Brazil purchased her imports up until the eve of the World War yield some interesting and enlightening facts when submitted to scrutiny, only the most important of which can here be singled out for special mention. First of all, of course, the prominence of Great Britain

COUNTRIES OF ORIGIN OF IMPORTS

1842-1843		1852-1853		1862-1863	
Gr. Brit.	24,527	Gr. Brit.	46,517	Gr. Brit.	50,766
France	6,085	France	11,829	France	18,383
United States..	5,953	United States..	7,422	Plate Rep.	6,650
Portugal	4,057	Portugal	5,763	United States..	6,044
Plate Rep.	3,403	Germany	5,138	Portugal	5,966
Germany	2,485	Plate Rep.	4,860	Germany	5,379
Spain	860	Belgium	1,612	Spain	1,855
Italy	784	Spain	746	Belgium	1,008
Belgium	643	Austria-Hung..	688	Austria-Hung..	792
Austria-Hung..	301	Italy	672	Italy	588

1872-1873		1903		1913	
Gr. Brit.	80,769	Gr. Brit.	160,738	Gr. Brit.	246,546
France	22,846	Germany	59,943	Germany	176,061
Portugal	12,505	United States..	54,930	United States..	158,301
Germany	10,718	Argentina	43,536	France	98,579
United States..	8,753	France	42,865	Argentina	74,981
Uruguay	6,356	Portugal	35,168	Belgium	51,480
Belgium	3,689	Uruguay	26,343	Portugal	44,221
Argentina	3,367	Italy	18,144	Italy	38,166
Spain	2,594	Belgium	14,218	Uruguay	21,751
Austria-Hung..	1,158	Austria-Hung..	8,869	Austria-Hung..	15,209

as the chief country of origin of Brazilian imports challenges attention, for Great Britain has been pre-eminent in this respect from the day that Brazilian ports were thrown open to the commerce of the world. But while this leadership of Great Britain was still evidenced in the statistics for 1913, its character had quite significantly altered. For although the value of the imports into Brazil from Great Britain was more than ten times as great in 1913 as it was in 1843, seventy years before, the relation of those imports to the total imports into Brazil had shrunk tremendously. In 1843 the value of imports from Great Britain was just a fraction below half of the total value. In 1913 it was less than one-fourth of the total, and her two nearest competitors in that year, Germany and the United States, together far outdistanced her.

Another striking fact brought out in the above tables, and one that has a close relation to the one just considered, is the astonishing rise of Germany as a purveyor of goods to Brazil. While Great Britain increased the value of her exports to Brazil tenfold, Germany increased the value of her exports to Brazil more than seventyfold! From a feeble sixth place in 1843, with goods sold to Brazil valued at one-tenth of the value of the goods sold by Great Britain, she had by 1903 outdistanced all the other countries, and in 1913 sold goods in Brazil equal in value to nearly three-fourths of the British trade. Even in the decade from 1903 to 1913, the value of German exports to Brazil increased to almost three times the sum in the earlier year, while that of British exports increased by only about half as much again as the earlier figure. What would have happened in the following decade had the war not supervened is easy to conjecture.

The advance of the United States as a country of origin of Brazilian imports, though not as spectacular as that of Germany, because already in 1843 the United States occupied third rank as she did also in 1903 and 1913, is decidedly worthy of mention. In the seventy-year period here under consideration the value of her exports to Brazil increased more than twenty-six fold as compared with the tenfold increase of British exports to that country. In 1843 the value of her products shipped to Brazil was roughly one-fourth as great as that of British goods so shipped, but in 1913 it was nearly two-thirds as great. The United States was lagging behind Germany, therefore.

Finally mention may be made both of the lagging behind of France in the race for the capture of Bra-

zilian trade—though she picked up considerably in the decade 1903-1913 and has increased the value of her export trade with Brazil more than sixteenfold since 1843, as compared with Great Britain's tenfold increase—and the remarkable rise of Argentina as a country of origin of Brazilian imports. From eighth rank in 1873, she jumped to fourth place in 1903, though outdistanced again by France in 1913. In the forty years from 1873 to 1913, the value of her exports to Brazil increased nearly fifteenfold.

Looking now at the other side of the picture, namely the chief countries of destination of Brazilian exports for the same illustrative years, the rank of the countries and the value of Brazilian goods received by them, expressed in terms of thousands of milreis, are shown in the following analogous tables:

COUNTRIES OF DESTINATION OF EXPORTS

1842-1843	1852-1853	1862-1863
Gr. Brit. 11,439	Gr. Brit. 24,673	Gr. Brit. 46,248
United States.. 6,792	United States.. 23,182	France 15,447
Germany 4,827	France 4,334	United States.. 15,258
Austria-Hung.. 3,998	Austria-Hung.. 3,905	Portugal 7,703
Portugal 3,088	Germany 3,569	Uruguay 5,152
France 2,468	Portugal 3,000	Germany 5,051
Plate Rep. 2,346	Belgium 1,620	Spain 2,364
Italy 1,280	Argentina 1,248	Sweden 2,347
Scandinavia .. 1,163	Italy 1,146	Belgium 1,044
Belgium 954	Uruguay 1,015	Denmark 1,026
1872-1873	1903	1913
Gr. Brit. 79,634	United States.. 306,582	United States.. 316,552
United States.. 63,268	Gr. Brit. 147,598	Germany 137,014
France 18,806	Germany 109,836	Gr. Brit. 128,709
Germany 16,473	France 71,576	France 119,400
Portugal 13,327	Holland 22,722	Holland 71,768
Argentina 6,717	Austria-Hung.. 20,149	Austria-Hung.. 46,932
Uruguay 3,551	Argentina 15,869	Argentina 45,829
Belgium 2,930	Belgium 14,072	Belgium 24,980
Spain 1,626	Portugal 9,605	Uruguay 15,946
Chile 1,363	Uruguay 6,516	Italy 12,553

Here, again, the most striking fact revealed by the tables is the preëminent position occupied by Great Britain as a purchaser of Brazilian goods, for the fifty years from the establishment of Brazilian independence until 1873. But thirty years later Great Britain had been crowded from first place by the United States, and in 1913 from second place by Germany. For the last year just before the war, indeed, the United States bought Brazilian goods, chiefly coffee, to an amount considerably greater than that of British and German purchasers put together. But equally significant is the fact that just before the World War Germany was quite appreciably a more important customer of Brazil's than was Great Britain, and, as was noted from the tables on Brazilian imports, was rapidly pushing Great Britain out of her place of leadership as a purveyor of goods to Brazil. Commercially, therefore, Brazil's future seemed destined to be linked with Germany rather than with Great Britain. This development was accompanied by a rapidly increasing steamship service by German lines to Brazil and by a marked expansion of German banking institutions in the latter country, both of which developments were partly cause and partly effect of the growth of commerce between the two countries.

Taking the values of imports and exports together, to show the total value of Brazil's foreign trade, we find that the ten principal countries ranked in 1913 in the order shown on page 407, expressing the values again in contos of reis or thousands of milreis.

It is to be noted from these figures that the value of the trade between the United States and Brazil in the last year before the war represented almost 24 per cent, or just a little less than one-quar-

United States	474,853
Great Britain	375,255
Germany	313,075
France	217,979
Argentina	120,810
Holland	82,685
Belgium	76,460
Austria-Hungary	62,141
Italy	50,719
Portugal	49,126

ter, of the value of the entire foreign trade of Brazil, as compared with almost 30 per cent which represented the proportion of Brazil's foreign trade carried on with the United States in 1903. In the same decade Great Britain's share of the total foreign commerce likewise declined, to an even greater degree, from 24 per cent in 1903 to 18.8 per cent in 1913. France increased her proportion slightly from 9.3 per cent in 1903 to 10.9 per cent in 1913, and Germany showed a more substantial increase in the same decade from 13.7 per cent to 15.7 per cent. Most striking, however, was the increase of the Argentine proportion from 4.8 per cent in 1903 to 6.1 per cent in 1913.

If we turn now from the figures which show the growth in value of Brazilian exports and imports in the period prior to the World War, and the importance of the position occupied by the principal countries of destination and origin, to the products which constituted the principal exports of Brazil in that period, we shall gain some idea of the bases of Brazilian foreign commerce, for of course in the last analysis the purchasing power of the country in foreign markets, that is, its ability to import foreign goods, is determined by the amount and value of the surplus national products available for export. Without attempting to trace the development of these products year by year,

it will be sufficient to pick out an adequate number of instances to show the tendencies reflected in this development. The figures given in connection with each product represent values in units of thousands of milreis, for while statistics in terms of weights reflect a more accurate picture of national production, it is the money value of the exports which is of prime importance in the consideration of foreign commerce. Nor will any consideration be given in this connection to the variations in the exchange value of the milreis, though in discussing the effect of the war period and post-war period on Brazilian foreign commerce it will be necessary to take that factor into consideration.

PRINCIPAL BRAZILIAN EXPORTS

<i>1839-1840</i>	<i>1849-1850</i>	<i>1859-1860</i>	<i>1869-1870</i>
Coffee 20,176	Coffee 22,838	Coffee ... 60,236	Coffee ... 77,094
Sugar 10,887	Sugar 14,933	Sugar 15,559	Cotton ... 44,934
Cotton ... 3,984	Cotton ... 5,768	Hides 9,512	Sugar ... 29,265
Hides 2,818	Hides 3,651	Cotton ... 6,433	Hides 13,899
Tobacco ... 658	Tobacco .. 1,053	Tobacco .. 4,013	Rubber .. 10,338
Cacao 408	Cacao 657	Rubber ... 3,402	Tobacco . 7,160
Rubber ... 257	Mate 651	Mate 2,018	Mate 4,537
Mate 227	Rubber ... 375	Cacao 1,287	Cacao ... 2,105
<i>1879-1880</i>	<i>1883-1884</i>	<i>1903</i>	<i>1913</i>
Coffee ... 126,260	Coffee ... 130,083	Coffee ... 384,299	Coffee ... 611,670
Sugar ... 31,334	Sugar ... 39,132	Rubber .. 196,217	Rubber .. 155,631
Rubber .. 12,242	Cotton ... 12,738	Hides ... 36,468	Hides ... 38,164
Hides ... 8,980	Rubber .. 9,459	Cotton ... 26,657	Mate 35,576
Tobacco . 7,661	Tobacco . 4,768	Cacao ... 20,415	Cotton .. 34,621
Cotton ... 5,187	Hides ... 4,403	Tobacco . 18,985	Tobacco . 24,779
Mate 2,522	Cacao ... 2,288	Mate 13,595	Cacao ... 23,904
Cacao ... 1,002	Mate 884	Sugar ... 4,032	Sugar ... 974

The outstanding fact that appears from these tables is, of course, that ever since 1840 coffee has been the principal article of export of Brazil. But the most astonishing fact in this regard is the manner in which the value of this single product among the chief ex-

ports has steadily outdistanced all the rest. In the period from 1840 to 1913 the value of the coffee exports increased more than 30 fold, while the total value of all exports increased only 24 fold. Or to put it in other language, in 1839-1840 the value of the coffee exports represented 47 per cent of the total value of exports, while in 1913 it represented 62 per cent of the total.

Next in interest is the decline in the importance of sugar as an export crop, not only relatively but absolutely. Sugar, which during the colonial era was by far the most important article of export from Brazil, retained second place until toward the close of last century, though far outdistanced by the value of the coffee exports, but in 1903 and 1904 it all but disappeared from among the exports of Brazil, and though reviving somewhat in the intervening years reached a new low level in 1912 and 1913. The temporary displacement of sugar from second place by cotton in 1869-1870 was due to the artificial stimulus given to cotton exporting by the Civil War in the United States. But ten years later this situation had again normalized itself, and cotton dropped back as an export crop to a figure lower than the value attained by cotton exports in 1849-1850. From then on the value of cotton exports steadily increased, but at a slower rate than the increase in the total value of exports, and by 1913 this product had been displaced in rank by hides, rubber, and maté, measured by the value of the exports.

Of particular interest also is the phenomenal rise and fall of rubber as an article of export. Of relatively little importance as late as 1883, though ranking fourth in the value of exports, rubber soon jumped to second place, and in the banner year, 1910, it all but equaled the value of the coffee exports. Then, how-

ever, came the break in the rubber market due to the competition of the Asiatic rubber plantations, and the value of rubber exports had tumbled in 1913 to considerably less than half of the value in 1910, when it had reached the record figure of 376,972 contos, or thousands of milreis.

The consistent increase in the value of exports in hides from Brazil is another important fact brought out by the above tables, and the remarkable increase in the decade 1903-1913 in the value of maté as an export product is another factor worthy of note, while tobacco has steadily occupied its position of fifth or sixth most valuable export product from the first.

Less detailed attention need be given to the character of the imports into Brazil prior to 1913, for in general they comprised just about what would be expected in the case of an almost purely agricultural country all but completely dependent upon the foreign market for prepared and manufactured articles. A comparison of two widely separated years, 1874-1875 and 1904, will serve to show certain tendencies, however, characteristic of the development of Brazilian imports in the period before the World War. Ranking the principal classes of imports in those two years with the value for each class indicated in units of contos or thousands of milreis, we have (see page 411).

In the two years under consideration, the total value of the imports was 167,459 contos and 512,587 contos respectively, so that they had increased in the thirty year period to almost exactly threefold the earlier figure. It is significant, therefore, that while cotton products headed the list in 1904, as they did in 1874, the value of the imports in that class of article was only 170 per cent of the value thirty years earlier. In

PRINCIPAL BRAZILIAN IMPORTS

1874-1875		1904	
Cotton thread, yarn and piece goods	44,711	Cotton thread, goods, etc.	76,243
Alcoholic beverages	18,019	Steel and iron.....	38,179
Woolen yarn and goods..	10,710	Alcoholic beverages	31,282
Dried meats	7,582	Wheat flour	31,105
Linen goods	6,051	Machinery	27,702
Wheat flour	5,738	Coal	25,151
Gold, silver, and platinum	5,683	Dried meats	25,102
Coal	5,377	Wheat	25,064
Steel and iron.....	5,357	Woolen yarn and goods..	13,098
Prepared hides and skins	5,185	Paper and paper products	12,241

the case of the woolen articles the relative decline was even greater. Stated in other terms, cotton articles, which constituted in value some 28 per cent of the total imports in 1874, constituted only 15 per cent in 1904, while woolen articles dropped from 6.6 per cent in the earlier period to 2.5 per cent thirty years later. Similarly, alcoholic beverages declined from 11.1 to 7.4 per cent of the total in the thirty-year period. This decline was chiefly due in all three cases to the growth of national industries supplying a steadily increasing proportion of the national consumption.

On the other hand, machinery jumped from 1.7 per cent of the total value of imports in 1874 to 5.4 per cent in 1904, while iron and steel products advanced from 3.3 per cent of the total to 7.4 per cent, and coal from 3.3 to 4.9 per cent of the total. This, of course, reflected the increase in industries and railway transportation during that period. The relative increase in wheat flour imports from 3.4 to 6.1 per cent reflected the increased demand for this staple food product as displacing the native substitutes, as well as the diminishing national production.

If now we examine the imports for the year 1913,

which was the biggest import year in the history of Brazil up to that time, whether calculated in terms of tonnage, Brazilian milreis, or British pounds sterling, we find the lines of development indicated by the above comparison of the earlier years, not only continued but even more clearly emphasized.

Cotton goods of all kinds now constituted less than 6 per cent of the value of the total imports and had decreased not merely relatively but even absolutely when compared with the values in 1904, furnishing striking evidence of the rapidity with which cotton textile manufacturing in Brazil was catching up with the national consumption in this basic article of commerce. The same was true of woolen manufactures, which diminished both absolutely and relatively in the value of imports in 1913 as compared with 1904.

On the other hand, the increasing importance of machinery, railway supplies, coal, steel, and iron among the imports was indicative of the steady increase in manufacturing industries and transportation facilities, while the importance of such items as structural steel and cement showed a new development in construction work of a modern character. Automobiles, virtually absent from among the imports in 1904, had in 1913 attained a value in excess of the value of woolen goods imported ten years before. Wheat flour represented an import value about the same as in 1904, constituting, therefore, about 3 per cent of the total value of imports instead of 6 per cent as in 1904, but wheat in the same period increased almost 100 per cent in value of imports, evidencing the growing importance of the milling industry in Brazil in the last decade before the World War, a development already pointed out before.

*Brazilian Foreign Commerce During the World War,
1915-1918*

Brazilian foreign commerce, like that of every nation trading with the belligerent nations, was profoundly affected by the World War, in which, moreover, Brazil was herself after October, 1917, a declared, albeit not a very decisive, participant. Keeping in mind the situation in 1913, and particularly the tendencies manifest in the development of Brazilian foreign commerce in the twentieth century, it will be possible to examine some of the major effects of the war on Brazilian commerce in the light of the statistics for the years 1915 to 1918 inclusive. The outbreak of the war, a little after the middle of the year 1914, makes the interpretation of the statistics for that year difficult in comparison with other calendar years, though even so some facts stand out with sufficient prominence. It may be well, therefore, to include the summarized figures for 1914 in the comparative tables that follow. On the other hand, although the armistice was signed early in November of 1918, post-war conditions scarcely commenced to make themselves felt until well into 1919, so that the year 1918 may properly be included in the wartime period.

The first tables will show the imports, exports, and total foreign commerce for the war years in comparison with the last pre-war year, 1913, from the triple point of view of gross volume or weight, value in Brazilian milreis, and value in the equivalent of American dollars, based on the average rate of exchange for the given year.

Looking first at the import figures, it appears that the volume of imports suffered a tremendous drop

<i>Year</i>		<i>1,000 Metric Tons</i>	<i>1,000 Milreis</i>	<i>1,000 U. S. Dollars</i>	<i>Value of 1,000 Milreis in Dollars</i>
1913	Imports	5,922	1,007,495	326,427	324
	Exports	1,382	981,768	318,092	
	Total	7,304	1,989,263	644,519	
1914	Imports	3,478	561,853	172,399	303
	Exports	1,310	755,747	227,463	
	Total	4,788	1,317,600	399,862	
1915	Imports	2,799	582,996	143,999	247
	Exports	1,809	1,042,298	257,448	
	Total	4,608	1,625,294	401,447	
1916	Imports	2,642	810,759	190,528	235
	Exports	1,871	1,136,888	267,169	
	Total	4,513	1,947,647	457,697	
1917	Imports	1,986	837,738	209,435	250
	Exports	2,017	1,192,175	298,044	
	Total	4,513	2,029,913	507,479	
1918	Imports	1,738	989,404	250,319	253
	Exports	1,772	1,137,100	287,686	
	Total	3,510	2,126,504	538,005	

even in 1914, and declined steadily throughout the years of the war, being considerably less than a third as great in 1918 as in 1913. This, of course, was due in part to lack of shipping, as practically all of the Brazilian foreign commerce was in 1913 carried by ships of countries immediately involved in the war. But cessation of peace-time industry in Europe and higher prices were the chief causes. The value of the goods imported in 1914 dropped even more in relation to 1913 than did the volume, but beginning in 1915 the import values in terms of milreis increased each year in spite of the steady decline in volume, so that in 1918, with the volume of imports less than 30 per cent of the volume in 1913, the cost in milreis was almost the same. This was in part due to the decline in the gold

value of the milreis, which in 1918 was worth less than 80 per cent of its value in 1913, so that it took 25 per cent more in milreis to pay for the same gold value of goods, but much more, of course, to the tremendous increase in prices occasioned by the war. Expressed in terms of gold dollars, the cost of each metric ton imported in 1913 was \$55, and in 1918 it had risen to \$144, not far from three times as much, therefore. In terms of milreis the increase in the price per metric ton was from 170 in 1913 to 569 in 1918, or more than $3\frac{1}{2}$ times as great.

In contrast with the import figures which showed such a tremendous decline in volume, the exports dropped only very slightly in 1914 and then mounted steadily until 1917. A considerable drop in volume of exports occurred in 1918, it is true, but even so the tonnage in that year was almost 30 per cent greater than in 1913. The amount received in Brazilian milreis for these exports likewise increased after the drop in 1914 and was more in 1918 than in 1913. But this increase, unlike the increase in the value of the imports, was not due to higher prices based on a gold standard, but to the decline in the value of the milreis, largely an illusory increase, therefore. This is clearly shown by the fact that in terms of gold dollars the value per metric ton of the exports in 1913 was 230 and in 1918 it was 162, or only 70 per cent as much. Measured in terms of gold dollars, the value of Brazilian exports even in the best of the war years, 1918, was considerably below the 1913 values.

Comparing the figures for exports with those for imports, it appears that beginning in 1914 there was a considerable favorable visible trade balance for Brazil in terms of values, though the volume of imports ex-

ceeded that of exports until 1917. Taking the total figures for the foreign trade of the war years, it is seen that in terms of milreis it exceeded in 1917 and 1918 the figures for 1913, but that measured in gold values, the total was still in 1918 considerably below that in the last year before the war.

In this connection it is interesting to note that whereas in 1913 the freight and insurance and other shipping charges averaged a little over 16 per cent of the total value of imports (C.I.F.) to Brazil, this percentage was 19.7, 22.9, 25.3, and 23 respectively for the four years 1915-1918 inclusive. Freight and insurance charges, therefore, increased even more rapidly during the war than the F.O.B. prices in the countries of origin.

The next point of interest in regard to the effect of the war on Brazilian commerce is how did it affect the character of imports and exports. As regards the imports, the inevitable result, of course, was to curtail the supply of all goods directly or indirectly required for the wartime needs of the belligerents. The coal imports, for instance, diminished from 2,262,347 metric tons in 1913 to 637,486 in 1918, and gasoline from 29,000 metric tons in the former year to 17,717 in 1917. Steel, iron, and railway supplies fell off even more, and food supplies were similarly curtailed. Wheat flour imports dropped from 170,160 metric tons in 1913 to 109,960 in 1917, and wheat from 438,425 metric tons in the earlier year to 191,935 in 1917. Codfish, which had been imported in 1913 to an amount of 49,569 metric tons, dropped in 1917 to 20,569. Equally striking was the drop in imports of cotton piece goods, which, although already on the decline before the war, were still a major item in 1913.

From nearly ten thousand metric tons in 1913, the imports of this class of articles had dropped to 4,160 metric tons in 1917, due partly to scarcity of shipping, partly to increased prices, but chiefly to the rapidly increasing number of cotton mills in Brazil.

The character of Brazilian exports was likewise altered by the war, though not as profoundly as the imports, partly because Brazil could not greatly alter her chief articles of production and partly because her chief products for export in normal times were all needed by the allied belligerents and neutral nations during the war. Nevertheless, some interesting developments occurred which are worthy of brief mention. If we compare the value in milreis of the eight principal exports in 1913 with their values in the four war years, we shall be able to tabulate them in the following manner, expressing the values as before in units of contos of reis, or thousands of Brazilian milreis:

CHIEF BRAZILIAN EXPORTS DURING THE WAR

1913	1915	1916
Coffee 611,670	Coffee 620,489	Coffee 589,201
Rubber 155,631	Rubber 125,899	Rubber 144,113
Hides 38,164	Hides 68,082	Hides 87,755
Mate 35,576	Cacao 56,140	Cacao 50,371
Cotton 34,621	Mate 35,968	Tobacco 30,899
Tobacco 24,779	Tobacco 23,115	Mate 30,076
Cacao 23,904	Sugar 14,484	Manganese 29,504
Manganese 2,221	Manganese 10,530	Frozen Meat.. 28,193

1917	1918
Coffee 440,258	Coffee 352,727
Rubber 137,524	Sugar 100,612
Hides 78,796	Hides 75,019
Sugar 72,923	Rubber 72,543
Frozen Meat 60,233	Frozen Meat 60,755
Manganese 57,284	Manganese 45,843
Cacao 48,084	Tobacco 43,773
Beans 40,626	Cacao 39,752

This ranking of the articles of export according to value in milreis does not, of course, reflect absolutely the variations in volume of each article exported, since the price fluctuations for the various exports differed during the years under consideration. But for our purposes the variations in money values of exports are more important in this connection.

Coffee, as is readily seen, maintained its preëminent position as chief export, though it declined markedly in relation to the total value of exports, from 62 per cent of the total in 1913 to 31 per cent of the total in 1918. Rubber retained second rank among exports until the last year of the war, when it dropped to fourth place. Hides consistently retained third place during the war years, a position they had occupied in 1913 also, but it is to be noted that while the value of the exports of coffee and of rubber was during the war period far below the 1913 figures, the export value of hides averaged during the quadrennium more than the double of the 1913 figures.

Most striking among the developments of the war period, however, was the enormous impetus given to the export of food products from Brazil. This is best illustrated by the rise in sugar exports from eighth place in 1913 to second place in 1918, and of frozen meats, which did not figure among Brazilian exports at all in 1913, but in 1917 had attained fifth place among the chief exports. The same development is shown in the case of beans, the exports of which in 1913 were practically nil (only 7 metric tons) but which in 1917 had attained seventh place among the leading exports.

This stimulus to the production of surplus food-stuffs for export, greatly accentuated by the entry of

the United States into the war and the breaking of diplomatic relations between Brazil and Germany immediately thereafter, manifested itself also with regard to other food products. Some of these had never figured among Brazilian exports at all before, while others had even figured among Brazilian imports prior to the war. Chief among these articles may be mentioned, besides sugar, frozen meats, and beans, already noted, lard, preserved meats, manioc flour, and rice. Some conception of the remarkable developments in this direction may be gained from the following table, showing the value in thousands of milreis of these food products:

	1913	1915	1916	1917	1918
Lard	29	5	6	17,245	26,161
Preserved meats	...	163	1,584	9,206	26,301
Manioc flour	703	837	1,352	5,264	28,424
Rice	24	8	565	24,093	19,702
Corn	...	...	812	3,927	3,536

As we shall see, this emergence of Brazil as an exporter of staple food crops due to the artificial stimulus of war conditions did not long outlast the war conditions, but it served to demonstrate the significant fact that in the case of many of the prime food necessities, Brazil could not merely be self-sufficient, but in case of necessity could enter the world market as an exporter.

Aside from foodstuffs, the only product the exportation of which from Brazil was signally stimulated by the war was manganese, so important in the iron and steel industry. In 1913 the value of this export was insignificant, 2,221 contos of reis or thousands of milreis. During the war years it took a sudden jump to

10,530 in 1915, to 29,504 in 1916, and to 57,284 in 1917, dropping back somewhat to 45,843 in 1918.

If we consider now the countries with which Brazilian foreign commerce was carried on during the war years, the effects of the war were no less striking. Germany, which ranked second in 1913 both as regards imports from and exports to Brazil was immediately eliminated as a factor in both respects, owing to the Allied blockade. The United States, on the other hand, which for years had been the chief purchaser of Brazilian goods, not only strengthened her position in that regard but quickly began to displace Great Britain from first place in the value of goods sent to Brazil. The neutral trading countries of Europe, especially Sweden, Holland, and Denmark, showed marked gains in comparison with the belligerent countries, while Argentina and Uruguay in South America also gained at their expense. .

In all respects, therefore, the war period, and particularly the two last years of the war period, showed abnormal conditions in Brazilian foreign commerce. Now we shall examine the post-war years, which in some respects were even more abnormal. In considering the developments since the close of the war, we shall have to distinguish several different periods, which for convenience may be designated as the post-war boom period, 1919 and 1920, the period of post-war deflation, 1921 and 1922, and the gradual return to normalcy in 1923.

The Post-War Boom, 1919-1920

Examining first the two years immediately following the war, viz., 1919, 1920, we can best institute comparisons with the last year of the war period by means

of the following table showing the imports, exports, and total foreign commerce in terms of tonnage, Brazilian milreis, and American dollars, showing also the average exchange rate for each of the years:

<i>Year</i>		<i>1,000 Metric Tons</i>	<i>1,000 Milreis</i>	<i>1,000 U. S. Dollars</i>	<i>Value of 1,000 Milreis in Dollars</i>
1918	Imports	1,738	989,404	250,319	253
	Exports	1,772	1,137,100	287,686	
	Total	3,510	2,126,504	538,005	
1919	Imports	2,779	1,334,259	349,576	262
	Exports	1,908	2,178,719	570,824	
	Total	4,687	3,512,978	920,400	
1920	Imports	3,276	2,090,633	455,758	218
	Exports	2,101	1,752,411	382,026	
	Total	5,377	3,843,044	837,784	

It can be seen at a glance what a tremendous increase there was in the volume of imports and exports, but especially of the former, in 1919, marked by further advances in 1920, the volume of imports again exceeding the volume of exports in the two years under consideration. Measured in terms of milreis there was likewise a tremendous increase in 1919 both in imports and exports. But in 1920 the value of the imports increased over the preceding year by more than 50 per cent, while the value of the exports diminished in spite of increased tonnage, so that in 1920 the unfavorable visible trade balance against Brazil was considerable. In spite of that fact, however, the total value of Brazilian foreign commerce measured in terms of milreis was the largest ever registered.

It must be noted, however, that in 1919 the gold value of the milreis was greater than in 1918, whereas in 1920 it was considerably less, so that the gold value

of the total foreign commerce of Brazil in 1920 was actually considerably less than in 1919. So, although Brazilian foreign trade was in 1920 incomparably greater than in 1918, and appeared on the surface as even more of a boom year than the year 1919, in reality a decline had already set in, and the frenzied buying which increased the gold value of the imports by \$106,182,000, was much more than offset by the decline of \$188,798,000 in the value of the exports.

While these results, expressed in terms of gold values, reflect the situation fairly enough so far as it related to the trade between the United States and Brazil since that had to be measured in terms of gold dollars, it must not be overlooked that they are misleading so far as the commerce between Brazil and the countries of Europe were concerned, especially the two principal countries, France and Great Britain. While the Brazilian milreis declined appreciably in 1920 in relation to United States dollars, it was actually worth more in terms of British pence in 1920 than it was in 1919 and worth much more than in 1918. Even more pronounced was the increase in the value of the milreis in terms of French francs, being worth 2.98 francs in 1920 as compared with 1.80 in 1919 and 1.42 the year before. This curious situation was due, of course, to the big drop in the gold value of the British pound and the French franc. Consequently in terms of British pounds, 1920 was the greatest boom year ever experienced in the total of Brazilian foreign trade, the value measured in those terms being more than the double of 1918 and considerably more than in 1919. Since a large part of the foreign commerce was with these two countries and with others that likewise suffered from a depreciated currency, and

since most of the foreign debt of Brazil was payable in terms of British pounds and French francs, the effect of the decline of the milreis in terms of American dollars was largely offset by its rise in relation to the other currencies.

It is necessary, in order to get a true conception of this boom period, to point out the relations between the conditions in 1920 and in 1913, the last pre-war year. In point of volume of foreign trade, even 1920, with its total of 5,377,000 metric tons, fell far below 1913 with its 7,304,000 metric tons, and was in fact less in volume than the years 1911 and 1912. In terms of Brazilian milreis, it is true, 1920 was the double of 1913, but as the milreis was worth only two-thirds as much in gold in the latter year as in the former, the increase in the gold value of the foreign trade was only 30 per cent. That the gold value of the foreign trade was greater in 1920 with a gross tonnage of 5,377,000 metric tons than in 1913 with a gross tonnage of 7,304,000 was, of course, due to increased prices and transportation charges. The average value per metric ton in 1913 was, in fact, \$88.00, while in 1920 it was \$156.00 or almost the double, and at the peak of prices, in 1919, it averaged nearly \$200,000.

Equally interesting were the changes noted in the boom years of 1919 and 1920 in the participation of the various countries that shared in Brazil's foreign trade. The following table shows the ranking of the ten principal countries in these two years in comparison with the last year of the war, and the last year before the war, 1913, the values being expressed in terms of thousands of Brazilian milreis.

The most striking feature of the table below is, of course, the enormous strengthening of the position of

COUNTRIES OF ORIGIN OF IMPORTS

1913	1918	1919	1920
Gr. Brit., 246,546	U. S., 355,932	U. S., 640,511	U. S., 880,237
Germany, 176,061	Gr. Brit., 201,878	Gr. Brit., 215,544	Gr. Brit., 453,049
U. S., 158,301	Arg 'tina, 187,899	Arg 'tina, 204,448	Arg 'tina, 157,214
France, 98,579	France, 47,348	France, 50,531	France, 117,381
Arg 'tina, 74,981	Uruguay, 41,266	Portugal, 39,718	Germany, 104,862
Belgium, 51,480	Portugal, 37,963	India, 30,329	Italy, 50,380
Portugal, 44,221	New 'land, 23,709	Uruguay, 29,602	Portugal, 43,212
Italy, 38,166	Italy, 21,054	New 'land, 21,706	Belgium, 38,899
Uruguay, 21,751	Spain, 17,486	Italy, 18,261	Spain, 28,499
A.-Hung., 15,209	India, 12,349	Sweden, 15,174	Uruguay, 27,252

the United States as chief country of origin of Brazilian imports. At the same time, however, it is significant to note that Great Britain and France both more than doubled their exports to Brazil from 1919 to 1920, and Germany jumped from nothing at all in 1918 to almost as much as France in 1920, developments that continued with increased emphasis in the succeeding period.

Looking now at the exports from Brazil during the boom period of 1919 and 1920, in comparison with the pre-war year 1913 and the last year of the war period, we may summarize the developments in the following table, showing the standing of the principal countries of destination of Brazilian exports:

COUNTRIES OF DESTINATION OF EXPORTS

1913	1918	1919	1920
U. S., 316,552	U. S., 393,896	U. S., 901,814	U. S., 725,189
Germany, 137,014	Arg 'tina, 172,753	France, 463,793	France, 200,458
Gr. Brit., 128,709	Italy, 120,998	Gr. Brit., 157,752	Gr. Brit., 140,024
France, 119,400	Uruguay, 118,505	Arg 'tina, 96,458	Italy, 123,122
Holland, 71,768	Gr. Brit., 114,802	Uruguay, 95,824	Arg 'tina, 120,117
A.-Hung., 46,932	France, 102,416	Belgium, 79,924	Germany, 112,301
Arg 'tina, 45,829	Spain, 25,421	Italy, 66,773	Uruguay, 77,143
Belgium, 24,980	Norway, 9,494	Holland, 64,788	Holland, 52,422
Uruguay, 15,946	S. A. Un., 8,904	Sweden, 55,681	Belgium, 47,794
Italy, 12,553	Belgium, 5,760	Denmark, 40,517	Portugal, 35,628

Here, again, the most striking feature of the developments in 1919 and 1920, aside from the continued preëminence of the United States as a purchaser of Brazilian goods, which, however, was already somewhat on the decline in 1920, was the returning importance of the belligerent countries of Europe which had been crowded out during the war by the South American neighbors of Brazil. Argentina and Uruguay, which had occupied second and fourth position respectively in 1918 in the value of goods bought from Brazil, had in 1920 dropped to fifth and seventh place respectively, while France and Great Britain climbed back into second and third place. Most remarkable was the tremendous increase in the exports to France in 1919, which advanced that country from sixth to second place, a position she continued to occupy in 1920, though with much reduced quantity. Germany, which bought no goods in 1918, and had not acquired a place among the first ten countries in 1919, had already returned to sixth place a year later, only two years after the close of the war.

If we add together the value of exports and imports, we get the following figures for the total value of foreign trade of Brazil for the ten principal countries in 1913, 1918, 1919, and 1920:

1913		1918		1919		1920	
U. S.,	474,853	U. S.,	749,828	U. S.,	1,542,325	U. S.,	1,605,426
Gr. Brit.,	375,255	Arg'tina,	360,652	France,	514,324	Gr. Brit.,	593,073
Germany,	313,075	Gr. Brit.,	316,680	Gr. Brit.,	373,296	France,	317,839
France,	217,979	Uruguay,	159,771	Arg'tina,	300,906	Arg'tina,	277,331
Arg'tina,	120,810	France,	149,764	Uruguay,	125,426	Germany,	217,163
Holland,	82,685	Italy,	142,052	Italy,	85,034	Italy,	173,502
Belgium,	76,460	Portugal,	48,365	Belgium,	81,716	Uruguay,	104,395
A.-Hung.,	62,141	Spain,	42,907	Sweden,	70,855	Belgium,	86,693
Italy,	50,719	New'land,	23,709	Holland,	69,860	Portugal,	78,840
Portugal,	49,126	Sweden,	14,943	Portugal,	51,285	Holland,	63,364

With reference to the ranking of the principal countries on the basis of the total commerce with Brazil, the most interesting fact that appears from the above table is the marked tendency to a return in 1920 to the normal conditions reflected in 1913. With Germany already back in fifth place, and Argentina and Uruguay steadily declining in importance, the only abnormal feature in the 1920 situation was the remarkable advance shown in the position of Italy. Ranking in 1913 well below Belgium and Holland, Italy outstripped those two countries even during the war, and in 1920 showed a foreign commerce with Brazil considerably greater than that of those two countries put together. With the dismemberment of Austria-Hungary by the Treaty of Versailles, that country of course, permanently disappeared from the list of nations with which Brazil carried on her commerce, after having attained a position in 1913 well ahead of both Italy and Portugal.

Finally, brief mention may be made of the variations in the character of the Brazilian imports and exports during the boom period here under consideration. The peak year, 1920, showed the major articles of import to be steel and iron, machinery, wheat, coal, cotton goods, and wheat flour respectively, returning, therefore, to the pre-war normal of 1913, save that wheat flour and cotton manufactures continued to decline in importance. This decline was due, in the case of both of the articles mentioned, chiefly to the rapid development of flour mills and cotton mills respectively.

The eight principal articles of export in 1920, measured in terms of their value in milreis, were as follows, the figures representing contos of reis or thousands of milreis:

Coffee	860,958
Sugar	105,827
Cotton	80,697
Meats	67,212
Hides	64,792
Cacao	64,650
Rubber	56,974
Tobacco	46,041

As compared with the war years, the most important change in the principal exports of Brazil in the boom year of 1920 was the reappearance of cotton as an important export commodity, and the disappearance of manganese from among the first eight, though the latter article ranked ninth in 1920 with an export value of 39,829 contos of reis. As compared with the last year before the war, the outstanding feature of the 1920 situation is the return of sugar to the position of importance which it so generally occupied until the close of the nineteenth century. Coffee, which, it will be recalled, declined in relative importance during the years of the war, was in 1920 again virtually equal in value to all the rest of the exports put together, representing 49.2 per cent of the total value of the exports.

The Period of Post-War Depression, 1921-1922

The sudden drop from the boom conditions in Brazilian foreign commerce during 1919 and 1920 is eloquently attested by the figures for 1921. In volume the imports dropped in one year from 3,276,000 metric tons to 2,578,000 metric tons, the exports from 2,101,000 to 1,919,000, and the total from 5,377,000 to 4,497,000. In terms of thousands of Brazilian milreis, the decrease was from 2,090,633 to 1,689,839 in imports; from 1,752,411 to 1,709,722 in exports; and from

3,843,044 to 3,399,561 in the total. But these decreases pale into insignificance compared with the drop in gold values of Brazilian imports and exports, due to the tremendous decline in the value of the milreis. A conto of reis, or a thousand milreis, fell from \$218.00 in 1920 to \$129.00 in 1921, with the result that values of imports fell from \$455,758,000 to \$217,989,000, exports from \$382,026,000 to \$220,554,000, and the total foreign trade from \$837,784,000 to \$438,543,000. As the fall in the milreis was virtually as great with respect to the British pound sterling and the French franc as it was with respect to the gold dollar, the commerce with Great Britain and France was affected in much the same way as that with the United States. From that angle the slump was almost 50 per cent.

Not only did the conditions in 1921 represent a tremendous slump in comparison with the conditions in the two boom years immediately preceding, but they compared very unfavorably with the pre-war conditions of 1913. Not only was the total volume of foreign trade far below that of the last pre-war year, 4,497,000 metric tons as compared with 7,304,000 metric tons, but the gold value was likewise far below, \$438,543,000 as compared with \$644,519,000. This great deficiency was, it is true, somewhat obscured by the fact that in terms of Brazilian money the value of the 1921 foreign trade was only slightly below that of 1919 and 1920, and was 70 per cent greater than in 1913, due to the fall of the milreis.

Now, whatever may be the factors bringing about the decline in the exchange value of the milreis, and of this something will be said further on, its effect on foreign trade is obvious. Imports will exhibit a corresponding advance in price and hence will tend to be

curtailed. Exports, on the other hand, the prices of which are quoted in depreciated currency, will be cheaper on the world market and hence will tend to increase. That is exactly what happened in 1921, for although both exports and imports decreased in volume and value, the greater part of the decline was registered in the imports. As regards the tonnage of exports, 1921 showed a considerably larger figure than 1913. This, of course, was an encouraging development in spite of the greatly diminished gold value of these same exports.

In 1922 the financial crisis in Brazil was in some respects even more acute and the value of the milreis steadily declined during the fall and winter of that year, though the average for the year was almost exactly the same as in 1921, viz., a conto of reis or a thousand milreis equaled \$129.00 in gold. Imports increased considerably in volume, but owing to a drop in prices of many imported articles, cost Brazil less than in 1921. Exports, on the other hand, though increasing only slightly in volume, increased over 37 per cent in value and very nearly reached the 1915 figures again. In total volume of foreign trade, 1922, though showing a marked improvement over 1921 and exceeding the figures even of the boom years 1919 and 1920, was still far behind the 1913 figures, and the same was true of the gold value of the total foreign trade, which though in excess of the 1921 value, was still far below the boom years and even below the figures for 1913. Expressed in the form of tables, the developments of the years 1921 and 1922 show up as follows in comparison with the last pre-war year, 1913, the last year of the war, 1918, and the peak year of the post-war boom, 1920:

		1913	1918	1920	1921	1922
Volume in	{ Imports Exports Total	5,922	1,738	3,276	2,578	3,264
1,000 Metric		1,382	1,772	2,101	1,919	2,122
Tons		7,304	3,510	5,377	4,497	5,386
Value in	{ Imports Exports Total	326,427	250,319	455,758	217,989	214,843
1,000 U. S.		318,092	287,686	570,824	220,554	303,171
Dollars		644,519	538,005	920,400	438,543	518,013

In respect to the character of imports, there was no great alteration in the two years under consideration, the nine chief classes of imports in the two years ranking in terms of gold values as follows:

1921		1922	
Machinery, apparatus, and tools	\$35,101,560	Machinery, etc.	\$25,116,000
Iron and steel manufactures	24,578,580	Wheat	21,979,620
Wheat	24,573,510	Iron and steel manufactures	17,873,310
Coal, coke, and briquettes	10,988,900	Cotton manufactures.	11,785,540
Cotton manufactures.	9,158,370	Coal, coke, etc.....	11,114,350
Paper and paper products	7,693,140	Wheat flour	8,929,440
Kerosene	6,824,220	Chemicals, drugs ...	7,737,990
Gasoline	6,721,780	Paper and products..	6,721,520
Wheat flour	6,207,760	Kerosene	5,443,620

The relative importance of the chief exports for those two years is shown by the following table, likewise expressed in terms of American dollars:

1921		1922	
Coffee	\$132,478,450	Coffee	\$175,835,026
Sugar	12,241,970	Sugar	11,362,670
Frozen meats	8,489,650	Hides	10,242,038
Tobacco	7,164,300	Frozen meats	8,052,926
Hides	6,826,950	Vegetable oil seeds..	7,910,886
Cacao	6,181,370	Cotton	7,731,958
Cotton	5,972,720	Cacao	7,058,464
Vegetable oil seeds..	5,096,260	Rubber	6,863,924

As compared with the exports in 1920, the most striking feature is the decline in the relative importance of sugar and cotton and the rise in importance of oil producing seeds, which for the first time appeared among the eight principal articles of export.

More significant, however, than the variations in value and in character of imports, were the developments with respect to the countries of origin of imports and destination of exports. As to imports, the outstanding fact was that the United States, which in 1920 stood first with almost double the values of the nearest competitor, Great Britain, exported in 1921 only about 50 per cent more in value than Great Britain, and in 1922 fell definitely below that country in the value of exports to Brazil, thus returning to pre-war conditions in that respect. Argentina retained her place as third among the countries of origin of Brazilian imports, but Germany, in 1921, pushed France out of fourth place and increased her lead considerably in 1922. Ranked according to the value of goods sold to Brazil, the chief countries appeared as follows in 1921 and 1922:

1921		1922	
United States	\$68,521,700	Great Britain	\$55,524,300
Great Britain	44,805,280	United States	49,260,510
Argentina	25,942,410	Argentina	29,321,630
Germany	17,817,020	Germany	19,140,810
France	13,585,780	France	12,735,710
Belgium	8,996,000	Italy	8,311,810
Italy	6,308,250	Belgium	6,840,990
Mexico	6,237,660	Portugal	5,230,030
Portugal	4,041,960	Mexico	3,789,630

Of interest also, in connection with the above tables, is the appearance for the first time of Mexico among

the ten chief countries of origin of Brazilian imports, though the values are relatively small.

With regard to the countries of destination of Brazilian exports, the most important development of the two years 1921 and 1922 was the increase in the share of Great Britain as compared with France and the further advance of Germany into fifth place, displacing Italy and almost equaling Argentina. Indeed, in 1921, Germany rose to third place, but fell behind Great Britain and Argentina again in 1922.

The standing of the principal countries of destination of Brazilian exports for the years 1921 and 1922, expressed in terms of American dollars, was as follows:

1921		1922	
United States	\$81,628,820	United States	\$117,648,700
France	22,205,560	France	33,474,870
Germany	21,456,370	Great Britain	29,953,950
Netherlands	15,444,000	Argentina	20,657,910
Great Britain	15,329,080	Germany	18,306,730
Argentina	14,677,000	Netherlands	17,002,180
Italy	14,326,520	Italy	16,726,840
Uruguay	12,479,480	Uruguay	10,877,100
Belgium	5,594,290	Belgium	8,445,580
Portugal	4,765,670	Sweden	6,240,260

Totaling the exports and imports, the principal countries with which Brazil carried on her foreign trade in 1921 and 1922 ranked as follows:

1921		1922	
United States	\$150,150,520	United States	\$166,909,210
Great Britain	60,134,360	Great Britain	85,478,250
Argentina	40,619,410	Argentina	49,979,540
Germany	39,273,390	France	46,210,580
France	35,791,340	Germany	37,447,540
Italy	20,634,770	Italy	25,038,650

The Return to Normalcy, 1923-

Although the year 1923 witnessed the decline in the gold value of the milreis to the lowest levels it had ever attained, a situation which, as has already been noted, inevitably reacts forcibly on the normal flow of foreign commerce, yet in spite of that disturbing factor there was noted a distinct tendency toward normal conditions. By this is meant conditions less extreme than those represented either by the years of the war, the post-war boom period, or the post-war period of depression, and approximating more nearly those of 1913.

In point of fact, 1923 showed an improvement over 1922 in respect both to volume of imports and exports and to their value in terms of gold dollars. In terms of Brazilian milreis the increase was, of course, much more pronounced, but as this was due to the decreased value of the milreis it was in large part more apparent than real. The figures for 1923 showed the following situation:

	<i>Metric Tons</i>	<i>Value in Dollars</i>
Imports	3,575,872	\$240,666,322
Exports	2,230,450	349,485,498
Total	5,806,322	\$590,151,820

As compared with 1922, therefore, there was an increase in volume of both exports and imports, and the total volume was the greatest attained since 1913. There was likewise an increase in the gold value of both imports and exports as compared with 1922, in spite of the diminished value of the milreis, the gold value of the exports actually exceeding those for the

year 1913, with a very considerable visible trade balance favorable to Brazil.

In respect to the character of Brazilian exports, the most noticeable feature was the return to its earlier preponderating position of coffee as chief export, and the renewed importance of sugar and cotton. Ranked according to their value, the chief exports in 1923 were the following:

	<i>Value in Dollars</i>	<i>Metric Tons</i>
Coffee	\$225,210,568	867,960 (14,466,000 bags of 60 kgs.)
Sugar	15,041,718	153,175
Cotton	12,628,734	19,170
Hides	11,620,462	57,798
Cacao	9,872,310	65,329
Frozen meats	9,168,046	76,829
Oil producing seeds	9,060,350	100,019
Rubber	8,604,762	17,995
Tobacco	6,179,270	36,536

The value of the coffee exports alone, it will be noticed, amounted to about 64 per cent of the total value of the exports, or nearly two-thirds. This position was almost exactly the same as that occupied by coffee in the year 1913. In the Brazilian discussions of the foreign commerce of that country, 1913 is now always taken as a basis of comparison, for no year after that approached normal conditions sufficiently to be taken as a standard. For purposes of comparison, therefore, the intervening years may almost be overlooked and the year 1923, as opening up a new decade, may profitably be measured in terms of 1913, in spite of the drop in the value of the milreis from 32 cents to one-third of that sum in 1923.



Political Map of Brazil.

CHAPTER XIII

THE INDIVIDUAL STATES

BRAZIL, as has already been pointed out, consists politically of twenty states, the federal district of Rio de Janeiro, and the federal territory of the Acre. These political subdivisions are, it is true, the result of largely fortuitous circumstances and do not constitute natural divisions based on geographic, ethnic, or economic considerations. But since their elevation in 1889 to the status of autonomous members of a federal union, they have been constitutionally free to shape their own destinies in large part, and thirty-five years of statehood have developed and accentuated differences as great as and even greater than those found in the United States of America between such dissimilar states as Maine and Texas, or Delaware and Montana. Moreover, while the life history of these divisions as autonomous members of a federal union is comparatively brief, their history as provinces of the empire and captaincies of the vice-royalty and colony goes back four hundred years, and these four centuries of greater or less individual differentiation have stamped their impress indelibly upon most of the present states.

To ignore these political subdivisions entirely in even such a concentrated treatment of Brazil as this is, would be to omit one important aspect which plays a large part in coloring the whole picture. But the treatment of this aspect, because of the considerable

number of entities involved and because of the enormous differences manifested in these entities, presents peculiar difficulties. For convenience in treatment they might well be grouped into various more or less homogeneous classes. One such grouping would be suggested by their geographical location, such as the north coast states, the northeastern states, the central Atlantic states, the southern states, and the states of the interior, constituting groups that have certain features at least in common. Other groups would suggest themselves on the basis of area, population, natural products, or economic status.

But all such groupings for the sake of convenience in treatment are, after all, more or less arbitrary and somewhat misleading, as the differences exhibited within a group are likely to be quite as striking as the similarities. There remains, therefore, only the rather encyclopædic and forbidding method of dealing with each state separately. But even here various possibilities present themselves as regards the order of presentation. From some points of view a geographical basis offers advantages, considering each state with reference to its neighbors. From other points of view it would be helpful to rank the states on the basis of area, or population, or wealth. But for a presentation such as this, which is intended to furnish not merely casual reading but also information for ready reference, there seems after all no better order of procedure than the handy if unattractive alphabetical order of the names.

Cruelly brief as the treatment of the individual states must unfortunately be, certain points will be touched upon in the discussion of each, not merely to set forth the outstanding features but also to permit

of ready comparison with each other and with states in the American Union which will be more or less familiar to American readers.

Alagoas

Area: 11,028 sq.m.—Population (1920): 978,748—Capital: Maceió, population 74,166.

Alagoas, nineteenth among the Brazilian states in area and ninth in point of population, is somewhat smaller than Maryland in extent and a little greater than Florida in point of population. In density of population it ranks second, with approximately 89 inhabitants per square mile.

Tucked away between the state of Pernambuco, of which captaincy it formed a part until 1817, and the lower reaches of the São Francisco River, it possesses a coast line of some 200 miles on the Atlantic, counting bays and other indentations. The littoral is low, sandy, and marshy, the name of the state signifying lagoons or marshes. The principal recess in the coast line is the Bay of Jaraguá, at the mouth of which is located the capital and principal seaport, Maceió.

A large portion of the state is occupied by the low-lying coastal plain and the basin of the São Francisco River, the terrain sloping gradually up to the hills of the maritime range, which at no point within the state, however, attain the dignity of mountains. Lying approximately between latitudes 9° and $10^{\circ} 30'$ south, the state presents a tropical climate with slight variations in temperature, the mean temperature varying from 72° F. in the winter, May to August, to 81° F. in the summer, December to March. The seasonal variations are rather those of the rainy and dry seasons, the

coastal regions exhibiting a heavy rainfall, close to 60 inches a year on an average. October to January inclusive are relatively dry months, while May to August show the greatest precipitation, the average number of days on which it rains being 136. In the interior, however, the annual rainfall is only about 24 inches, the number of days with rain only 115, and the average relative humidity 82 as compared with 88 on the seacoast.

The soil along the littoral is sandy, and along the São Francisco alluvial, while the hill slopes are covered with the rich loam characteristic of so much of Brazil. The natural products of the state include many varieties of tropical fruits, coconuts, hard woods and dyewoods, and almost countless varieties of medicinal plants. Agriculture is represented chiefly by sugar cane and rice in the lowlands, and by cotton and tobacco, and to a small extent, cereals, in the higher interior. Indian corn and manioc are the staple food products, and the interior portions of the state are well suited to cattle raising. The 1920 census enumerated 388,371 beef cattle and nearly 300,000 sheep and goats.

Mining has not yet developed to any extent, though minerals and precious stones are known to exist within the state. Manufacturing is represented chiefly by cotton mills, sugar refineries, and distilleries, though some other lines of manufacturing exist to a limited degree. The state exports considerable quantities of sugar, cotton, rum, coconuts, vegetable oils, and hides, amounting to more than 28,000,000 milreis, or, at four milreis to the dollar, to \$7,000,000, the imports being a little over half as much. Both exports and imports are carried on chiefly with the other states

of Brazil by ocean transportation through the port of Maceió.

In the matter of internal communications, the state is still undeveloped, there being only some 210 miles of railroads in operation. One line connects the capital with Pernambuco on the north, and a short line in the western portion of the state connects the lower reaches of the São Francisco River with the upper navigable stretches above the famous Paulo Affonso Falls. From Piranhas to the sea the São Francisco offers facilities for river transportation, a distance of about 170 miles. The Paulo Affonso Falls, though impeding navigation on the São Francisco, constitute not merely one of the most beautiful and impressive waterfalls in the world, but with an estimated available 2,000,000 horse power afford unexcelled opportunities for the generation of electric power for the whole northeastern region of Brazil.

The chief executive of the state is a governor elected by direct popular vote for four years and ineligible for immediate reëlection. The legislature is bicameral and comprises a chamber of deputies of thirty members and a senate of fifteen members, the former elected for three years and the latter for nine years, adult male suffrage of those able to read and write being prescribed by the federal constitution, and direct voting and minority representation being prescribed by the state constitution. For purposes of local government the state is divided into 35 municipalities with locally elected councils.

The annual state expenditures in recent years have averaged around five million milreis, or, say, a million and a quarter of dollars, about 10 per cent of which went for state aid to elementary public instruc-

tion. The number of primary schools is well over 300, with more than 11,000 pupils enrolled, secondary instruction being offered in two high schools and two normal schools besides a technical school subsidized by the government. The foreign debt of the state amounts to some 220,000 pounds sterling and the internal debt to a million and a half of milreis, the state treasury having shown favorable balances in recent years.

Amazonas

Area: 705,018 sq.m.—Population (1920): 363,166—Capital: Manáos, population 75,704.

Amazonas ranks first among Brazilian states in area, but nineteenth in point of population, there being but one inhabitant for every 1.9 square miles, or a density of .51 persons per square mile. In extent it is more than two and a half times as large as the state of Texas, while in population it is almost exactly the same as the state of New Mexico. More than one-fifth of the total extent of Brazil is in this one state.

Aside from its enormous extent and sparse population Amazonas presents other striking characteristics. It lies wholly to the west of the original line of demarcation between the possessions of Portugal and those of Spain and belonged originally to the latter country, therefore. But the Spaniards, though they were the first to discover the mouth of the Amazon River in 1500, and were likewise the first to descend its waters from Peru to the Atlantic in 1542, neglected to consolidate their rights by occupation, and so Portugal and Brazil acquired this vast empire by settlement. Though established as a separate

captaincy in 1755 under the name of São José do Rio Negro and organized as a province of the same name in 1821, it was made a subordinate administrative unit of the province of Grão Pará under the empire, being known as the district of the Upper Amazon. Finally in 1850 it became a distinct province under its present name and, as such, a state in the federal union in 1889.

Amazonas is one of the four states of the Brazilian Union that has no seaboard on the Atlantic, though its capital, Manáos, is virtually a seaport, since ocean-going vessels of deep draft proceed directly up the Amazon and tie up alongside its docks. Indeed the entire state is little more than the great basin of the upper Amazon and its tributaries, though the Guiana Highlands occupy a considerable area in the northern part of the state, and in the extreme southeast the Brazilian plateau projects its outposts a short distance into the state.

Lying wholly within ten degrees of the Equator and on either side thereof, and in large part only from one to two hundred feet above sea level, Amazonas as a whole has a distinctly equatorial climate. But this does not mean, as might naturally be supposed, extremes of heat. In ten years of continuous weather reports at Manáos, less than 150 feet above sea level, the maximum temperature recorded was 38.6° C. or 101.5° F., not as high a temperature as is regularly attained and even exceeded each summer in many parts of the central United States. This was for the month of December, which showed the greatest maximum. The maximum temperature recorded for July during the same period was 34.2° C. or 93.5° F. For the other months the maximum varied between the

two, showing that temperatures of between 94° and 100° F. are reached in every month of the year. The absolute minimum, on the other hand, for the same place and period of time varied from 19° C. or 66.2° F. for June to 21.4° C. or 70.5° F. for September and October.

Though the days are almost always hot, the nights are almost always cool, especially by comparison with the days, the mean temperature for the entire period being 27.4° C. or 81.3° F. The prevailing winds from the east, blowing up the broad bed of the Amazon, temper even the heat of the day and make the nights very bearable. There were on an average 153 days in the year on which it rained, the total rainfall reaching 65 inches. But July, August, and September are relatively free from rain, as the number of days on which it rains in those months averaged only six.

These official observations apply only, of course, to the region immediately surrounding Manáos, but they are fairly typical of most of the state that lies in the basin of the Amazon and are of interest as showing that weather conditions in this vast region are by no means as unbearable, even to members of the white race, as is commonly supposed. In fact, it is the water-borne and insect-borne diseases, and not the heat itself, that prove so dangerous, particularly in the marshy regions subject to the periodic inundations of the Amazon and its tributaries.

The incredible fertility of the alluvial soil, the steady heat and abundant rainfall, make of this great state an inexhaustible and scarcely opened treasure house of natural resources. Its endless forests contain the greatest variety and quantity of hard woods and dyewoods, and, above all, the rubber trees which

attracted most of its non-Indian population and provided its chief industry. But, as has already been pointed out, the rubber industry fell upon bad days when East Indian plantation rubber began to appear on the market, and the entire state has suffered correspondingly. In fact, in 1920 the population was less than that estimated in 1910, the year in which the rubber boom was at its height.

Agriculture is of the most primitive kind and furnishes nothing for export, the chief export articles being rubber, cacao, Brazil nuts, and other oil producing nuts. Vast plains in the northern elevations are adapted to cattle raising, and some 238,000 head of beef cattle were enumerated in 1920, hides figuring to some extent among the exports, which were valued in 1922 at some fifty million milreis.

In its remarkable network of great rivers, Amazonas has an unrivaled system of more than 7,500 miles of navigable waterways. But these are accessible only with great difficulty from the back country, and of highways there are practically none. Railways are also wholly lacking, save for the first five miles of the famous Madeira-Mamoré Railway that starts from Porto Velho on the Madeira River and circumvents the Santo Antonio Falls and Rapids.

A governor chosen by direct election for four years and ineligible for immediate reëlection, together with a single-chambered legislature of 24 members elected for three years, constitute the political organs of government. For purposes of internal administration the state is divided into 28 municipalities. But since the rubber crisis, the state, which depended largely on export taxes on rubber for its revenues, has been in bad financial shape, with a considerable external and

internal bonded debt and a large floating indebtedness, and expenditures regularly in excess of revenues. In 1922 the revenues were only 7,712,000 milreis to meet expenditures of more than 13,000,000 milreis. Under these circumstances public education is very rudimentary, there being only some 7,500 pupils in the 230 public elementary schools in all, and these are naturally concentrated in the more important places.

Bahia

Area: 204,393 sq.m.—Population (1920): 3,334,465—Capital: São Salvador, population 283,422.

Bahia, meaning Bay, a contraction of the original designation of *Bahia de Todos os Santos*, or All Saints' Bay, so named because Amerigo Vespucci entered the harbor on All Saints' Day in 1501, is sixth in area among Brazilian states and third in population. About four-fifths as large as Texas and more than four times the size of New York State, Bahia has a population almost exactly equal to that of Missouri or California.

From 1549, when the first Portuguese governor-general arrived in Brazil, until 1763, when Rio de Janeiro became the capital of the colony, the captaincy of Bahia was the seat of government, and its capital, São Salvador, the most important city in Brazil. It had a thrilling and romantic history, punctuated with Indian wars, civil disturbances, sackings by foreign freebooters, and even capture by the Dutch during their wars with Spain in the period when Portugal fell under the Spanish Crown. From early days the center of sugar and tobacco plantations, Bahia received the bulk of the slave trade, and even today the

negroes and mulattoes constitute nearly three-fourths of the population.

Sloping up gradually from the low-lying sandy littoral along its 742 miles of coast line, broken by many inlets and harbors, chief among which is the admirable Bahia de Todos os Santos, Bahia presents great rolling plains and forest-covered hills, rising to the elevated plateau known as the Chapada Diamantina. Then almost bisected by the valley of the São Francisco, it rises again toward the west, where almost unbroken ridges of mountains separate Bahia from Goyaz, the highest point in the state attaining nearly 5,000 feet of altitude.

Owing to these varying physical conditions, the climate of Bahia is by no means uniform, though the state lies wholly within 18 degrees of the Equator and for the most part within 14 degrees of the same. Along the coast the temperature ranges from 16.8° C. or 62.2° F. to 35.2° C. or 95.4° F. The mean annual temperature is 24.8° C. or 76.6° F., and, while the relative humidity is high, the prevailing winds from the sea temper the heat considerably. In the capital there are on an average 231 days in the year on which it rains, with an average annual rainfall of 74 inches. Along the southern part of the coast rain falls almost every day.

On the other hand, in the interior of the state at an elevation of 3,000 feet, the temperature drops to as low as 9.5° C. or 49° F. in June, mounting to as much as 36° C. or 96.8° F. in summer. The mean temperature is only 22° C. or 71.6° F., and the mean relative humidity 71, instead of 79 as on the coast, while the number of days with rain is 112 and the annual rainfall 36 inches, or less than half as much as on

the coast. Indeed, in portions of the interior of the state, especially toward the north, drouths are not unknown.

Of the natural products of Bahia the most important are timber, rubber trees, and a great variety of palms and tropical fruit trees. Agriculture is the chief industry and was developed from the earliest times, cacao, tobacco, sugar, cotton, and coffee constituting the chief crops aside from the staple domestic articles of diet, such as corn, rice, and manioc. Cattle raising is likewise an ancient and important industry, the census of 1920 enumerating 2,698,106 head of beef cattle, 631,441 horses and mules, 2,374,378 sheep and goats, and 784,155 swine.

The known mineral resources of the state are considerable, but in spite of the existence of gold, diamonds, and other precious stones, little has been done to develop the mining industry. Manufacturing, on the other hand, has made marked progress, particularly in recent years, tobacco products, cotton products, and sugar products being the principal articles of manufacture, though shoes, hats, and furniture are also manufactured in considerable quantities. Over 800 factories were enumerated by the census of 1920.

The exports of Bahia in 1922 were valued at 160,000,000 milreis, though this included some products of the interior state of Minas Geraes exported through Bahia. Cacao, tobacco, hides, coffee, and sugar constituted the chief articles of export, São Salvador, or Bahia, as the capital city is generally known outside of Brazil, having regular freight and passenger service connecting it with Europe and North and South America.

In the matter of internal communications, Bahia is

still largely undeveloped. The only navigable stream of any importance is the São Francisco, of which there are some 560 miles navigable in the state of Bahia. There are some 1,100 miles of railroad in operation in the state, radiating out for the most part from the capital and connecting it with the states to the north. But there is no railroad communication as yet with the states to the west and south, and the entire interior of the state waits upon railway extension for its development.

The city of São Salvador or Bahia, with its splendid port, its active foreign trade, and its population of over a quarter of a million, is the third city in size in Brazil. As is true also of nearly all of the other Brazilian states, in marked contrast with the situation in the United States, the political capital of the state is also the commercial capital and metropolis. Moreover, as is likewise true of most of the other states of Brazil, the capital is the only city of any importance in the state.

The governing organs of Bahia comprise a governor elected for four years by direct popular vote and ineligible for immediate reëlection, a chamber of deputies of 42 members chosen for two years, and a senate of 21 members chosen for six years and renewed biennially by thirds, both elected by direct popular vote with minority representation. For local government the state is divided into 136 municipalities, which in Brazil correspond more or less to the American counties. The finances of the state are in bad shape, the expenditures regularly exceeding the revenues and the financial obligations being irregularly met. Under these circumstances public education has necessarily suffered, and, out of a total expenditure of more than

31,000,000 milreis in 1922, only about 1,500,000 went for public elementary instruction, there being something over 800 public elementary schools in all, with some 40,000 pupils enrolled.

Ceará

Area: 57,371 sq.m.—Population (1920): 1,319,228—Capital: Fortaleza, population 78,536.

Ranking twelfth in area and seventh in population among the twenty states of Brazil, Ceará is just a bit larger in extent than Illinois and a bit smaller than Connecticut in population.

Ceará, an Indian name of uncertain meaning, is an anomaly in Brazil. In a land famous for its abundant rainfall, mighty rivers, and luxuriant vegetation, Ceará presents for the most part the appearance of a drouth-ridden area lacking in all three. Facing north and northeast along the Atlantic Ocean, it presents a low sandy coast line some 380 miles in length without a single major indentation worthy of the name of harbor. Sloping up from the low sandy littoral toward the south it gradually manifests the configuration of great rolling plains, broken here and there by isolated ridges and culminating in the south in the northern extremity of the maritime range, and bounded on the west by a continuous series of low ranges separating Ceará from Piauhý.

At the capital on the coast, the maximum and minimum temperatures range from 35.4° C. or 95.7° F. to 16.8° C. or 64.2° F., with a mean annual temperature of 26.1° C. or 79° F. The total number of days on which it rains averages 121 in the year, and the total rainfall averages 58.6 inches a year. But even there

on the coast, nine-tenths of the rain falls in the months from January to June.

But in the plains country, or interior, known in Brazil as the *sertão*, the situation is quite different. At Quixeramobim, for instance, some 150 miles from the coast, and 672 feet above sea level, both the maximum and minimum temperatures are higher and the mean is 81.5° F., but the relative humidity is 61, as compared with 77 on the coast. The total rainfall is only 25.9 inches and the number of days with rain only 80 a year, on the average. Moreover from July to December, inclusive, there is scarcely any rainfall at all, converting the plains into barren wastes. When the rain does come, it descends in torrential storms, filling the dry creek beds with raging torrents and rushing off fruitlessly to the sea. In some years the summer rains fail to materialize altogether, and then the country suffers from drouths that kill off the cattle by the thousands and drive the wretched inhabitants to the hills and to the coast for food and drink, thousands leaving the state altogether as penniless emigrants to other parts of Brazil.

In the hilly regions we find still another climate with cooler weather, abundant rainfall, and dense vegetation. But this is comparatively limited in extent, and the real Ceará is the *sertão*, the land of the pitiless sun. The soil in that region is fertile, suitable for either agriculture or stock raising, and the climate is healthful in spite of the heat. All that is needed to make this desert blossom like the rose is water, and the federal government has recently embarked upon a great program of building enormous reservoirs, not merely in Ceará, but in the rest of the drouth region of the northeastern states as well. These great dams,

constructed by British and American engineering firms, will impound the useless flood waters, turning what is needed into irrigation ditches and employing the surplus in turning the turbines of great hydro-electric power plants. But the completion of this elaborate and expensive system is still years in the future.

Not only the climate but the people of Ceará as well are quite distinct. For one thing negroes never played an important part in the peopling of that region. For another, the Portuguese settlers mingled more freely with the indigenous natives, and the Indian type is so pronounced as to be predominant. Moreover, the climate and the manner of existence have stamped the people of Ceará with such outstanding characteristics that they are recognized throughout Brazil as a distinct type.

Of natural products the most important are coconuts, carnauba wax, timber and tropical fruits. Agriculture includes principally cotton, sugar cane, and tobacco, aside from staple food crops. Cattle raising has always been an important industry in spite of the devastating drouths, the 1920 census enumerating over 500,000 head of beef cattle, 630,000 horses and mules, nearly 1,000,000 sheep and goats, and 184,000 swine.

Manufacturing is chiefly represented by cotton mills, though other articles of domestic consumption are also manufactured on a smaller scale. Exports in 1922 were valued at approximately 42,000,000 milreis, consisting chiefly of raw cotton, coconuts, fibers, rubber, hides, and skins. Practically all of the exports pass through Fortaleza, which is, however, little more than an open roadstead, the prevailing winds from the sea

compelling ocean steamers to anchor at a considerable distance from the shore.

The state has at present some 685 miles of railroad in operation, consisting of two main lines with their branches. These lines run south from the seaports of Camocim and Fortaleza, respectively, and are as yet isolated lines, though intended to connect up later with the roads of the neighboring states. Ceará is unfortunately lacking in navigable streams, and until the operations on the dams and reservoirs necessitated the building of passable highways was almost wholly deficient in good roads.

The government of Ceará comprises a president elected for four years by direct popular vote and ineligible for immediate reëlection, and a single-chambered legislature consisting of 30 deputies elected for four years by direct popular vote and under a system of minority representation. The annual expenditures of the state amount approximately to seven million milreis, the chief source of revenue, as in most of the states of Brazil, being taxes on exports. The external debt of the state includes 15,000,000 francs negotiated with French bankers in 1910, and a loan of \$2,000,000 placed with American bankers in 1922 for public works, especially in the capital, Fortaleza. For local government Ceará is divided into 90 municipalities, but aside from the capital there are no cities of importance. Public elementary instruction is furnished in some 450 schools, with about 20,000 pupils enrolled, the state devoting more than a seventh of its expenditures to public elementary instruction, aside from maintaining three public secondary schools and a faculty of law.

Espirito Santo

Area: 17,253 sq.m.—Population (1920): 457,328—Capital: Victoria, population 21,866.

Seventeenth in area and eighteenth in population among the Brazilian commonwealths, the state of "The Holy Ghost" is about half as large as Maine and about as populous as New Hampshire.

Sandwiched in between Minas Geraes and the Atlantic Ocean, Espirito Santo is only a hundred miles in width and some 250 miles in length, with a coast line of perhaps 265 miles. The Doce River, flowing from the plateau of Minas Geraes, divides the state into two fairly equal but quite dissimilar portions. The northern half is mostly low territory, covered along the coastal plain with lagoons and swamps and comprising great areas of dense forests. Even today this portion of the state is scarcely opened up to habitation, though the captaincy of Espirito Santo was laid out nearly four hundred years ago.

The portion south of the Doce River itself presents three rather distinct areas, the low, marshy coastal plain, the higher rolling plains of the interior, and, finally, the mountains of the western portion, some of which present the highest elevations to be found in Brazil. The peak of the Bandeira in the Caparaó Range on the boundary between this state and Minas Geraes is declared to be the highest point in all Brazil, with an elevation of 2,950 meters or roughly 9,600 feet. Naturally, the climatic conditions in the different portions of the state vary correspondingly. The sea-board region is hot and humid, with little variations in temperature and a heavy rainfall, the elevated plains are likewise hot but with less humidity and rain-

fall, and the mountain regions show a much more pronounced variation in seasonal temperatures, with a considerably lower mean temperature.

Small as Espirito Santo is and relatively close to the seaboard and the excellent natural harbor of the capital, Victoria, it still has large untouched natural resources. Chief among these are timber, comprising most varieties of the hard woods and dyewoods found in Brazil, and also important medicinal plants. Minerals of different varieties have been identified, though but little worked, and along the seaboard and streams are rich deposits of monazitic sands. Of agricultural products the most important is coffee, and Victoria ranks next after Santos and Rio among the coffee exporting centers in Brazil. Sugar cane, cotton, cacao, tobacco, and even cereals are cultivated to a considerable extent, though coffee and timber constitute the bulk of the exports. Cattle raising is of little importance, Espirito Santo having in 1920 the smallest number of beef cattle of any state in the Union.

With the other ports of Brazil and with foreign countries Espirito Santo has close contact through the splendid port at Victoria, though lack of navigable streams and of good highways interferes with internal communications. The state has two main railway lines, both starting at Victoria. One provides direct rail connection with the state of Rio de Janeiro to the south and the Federal Capital, the other runs north and then west along the River Doce into Minas Geraes, providing an outlet for some of the exports of that state.

Espirito Santo is essentially a rural state, not one of the 31 municipalities into which it is divided containing as many as 50,000 people, and the capital and

largest city, Victoria, having a bare 20,000 inhabitants in the strictly urban zone.

The government of the state comprises a president elected for four years by direct popular vote and ineligible for reëlection, and a single-chambered legislature or congress of 25 deputies elected for three years by a similar vote. The budget of the state in 1922 comprised expenditures of 11,220,000 milreis, with an estimated income somewhat greater, chiefly from export and stamp taxes. The external debt of the state is considerable, amounting to some 54,350,000 francs, with more than seven million milreis of internal debt in addition. Public instruction receives a very small proportion of the state expenditures, but there are over 300 public elementary schools in the state, with some 16,000 pupils enrolled, as well as a secondary school and a normal school supported by the state.

Goyaz

Area: 254,900 sq.m.—Population (1920): 511,919—Capital: Goyaz, population 21,223.

Much larger than any state in the American Union except Texas, and only about 10,000 square miles smaller than that giant among our commonwealths, Goyaz is, nevertheless, only fourth in size among Brazilian states. In population it ranks sixteenth and is somewhat less populous than Montana. With two inhabitants for every square mile, it is one of the most sparsely populated of Brazilian states, only Amazonas, Matto Grosso, and Pará, all with two or three times its area, are less densely populated.

Goyaz, falling, like Amazonas, west of the original boundaries set to Portuguese acquisitions in the West-

ern Hemisphere, was secured to Brazil by the "bandeirantes" from São Paulo, thrusting northward for slaves and gold. It started as a district of the captaincy of São Paulo, therefore, and was named after the tribal group of Indians which inhabited that region. As a rich gold and diamond district Goyaz was in 1749 created an independent captaincy, thus becoming a province of the empire and later a state in the federal union.

The first striking characteristic of Goyaz is that it is one of the four states of Brazil without an Atlantic seaboard. Secondly, Goyaz lies pretty nearly in the geographical center of Brazil and sits atop, therefore, of the great Brazilian plateau. From the elevated plateau in the southeastern portion of the state, where the federal government has selected 14,400 square kilometers or 5,560 square miles as a site for the new federal capital, the waters flow away in three directions. To the east they flow into the basin of the São Francisco, to the north into the valley of the Tocantins, and to the south into the headwaters of the Paranahyba and Paraná. Starting in within a few miles of each other on this plateau are the beginnings of streams that send their waters into the Atlantic at the mouth of the Amazon in the north, at the mouth of the São Francisco in the east, and at the mouth of the Plate in far-away Argentina to the south.

Covering approximately fifteen degrees of latitude, from 5° to 20° S., a stretch of a thousand miles from north to south, the effect of the tropical location of the state is profoundly modified by its physiographical aspects. Toward the north stretch the two great valleys of the Tocantins, which almost bisects the state from north to south, and of the Araguaya, which forms

the western boundary of the state throughout practically its entire extent. Here the climate is truly tropical, with scorching hot days and cool and even chilly nights, and a tremendous rainfall from October to April.

Taking Porto Nacional, about halfway down the course of the Tocantins, at an elevation of 770 feet above sea level, as typical of the conditions in these valleys, observations for a period of four years showed a maximum temperature of 38.7° C. or 101.7° F. for September. But every month in the year exhibited a maximum of more than 93° F. On the other hand, temperatures as low as 10.2° C. or 50.4° F. were recorded for July and August, and even in the hottest months a minimum of 65.8° F. was recorded at night. The annual rainfall amounted to over 77 inches, with 151 days on which rain fell. But May to September were practically without rainfall. At Palma, also in the valley of the Tocantins but somewhat farther up, that is, farther south, the mean temperature and the rainfall were somewhat less, but the extremes were greater, maxima of 104° F. being recorded in September, but as an offset, minimum temperatures of 33° F. or, virtually freezing, being encountered in March and May.

As an example of climatic conditions on the southeastern plateau we may take Formosa, situated within the confines of the quadrilateral set aside for the location of the future capital of Brazil. Here at 3,000 feet above the sea, the maximum temperature recorded is 95.5° F., with a minimum of 43.2° F., and a mean annual temperature of 70.2° F., instead of 77.4° F. as in the valley of the Tocantins. Both rainfall and humidity are likewise less on the plateau than in the

northern valleys, and, in spite of the hot days, 86° F. being recorded even in the coolest months, the climate is lauded as both healthful and agreeable. At higher elevations, and some points in the state attain nearly 6,000 feet, the temperatures are still lower, and frosts and freezing temperatures are not unknown.

The search for gold and precious stones led to the opening up of Goyaz to settlement, but cattle raising has long since become the principal industry of the state, more than 3,000,000 head of beef cattle being enumerated in 1920, besides half a million swine. Uncounted millions of acres of grazing land exist in the state, and agriculture is but relatively little developed, owing primarily to lack of transportation facilities. The Tocantins and the Araguaya are navigable for many hundreds of miles, but their courses are broken by falls and rapids which destroy much of their value for export purposes. Of highways Goyaz has practically none that would fall in the class of good roads. The only railway in the whole state is a short stretch in the extreme south, running north from the Minas Geraes boundary a distance of some 100 miles into the state. This line is ultimately to be extended to the capital and west to Matto Grosso.

In spite of sparse population, enormous distances, and undeveloped transportation facilities, the exports of this state amounted in 1922 to 7,787,000 milreis, chiefly by way of the Tocantins to Pará, and the Goyaz Railway to Minas Geraes. Livestock is the chief article of export, followed by rice, tobacco, dried meat, and hides. Of manufacturing industry but a bare beginning has been made. But the undeveloped natural resources of the state, forests, mineral deposits, and water power are enormous and await only population

and transportation facilities, two mutually dependent factors.

A president elected for four years by popular vote and ineligible for immediate reelection, together with a bicameral legislature consisting of a chamber of deputies of 24 members elected for four years, and a senate of 12 members elected for eight years, constitute the governing authorities of the state, which is divided for local government into 49 municipalities. Catalão, in the extreme southeastern point of the state, is larger and more important than the capital, a very exceptional condition among Brazilian states. The budget of the state in 1922 comprised expenditures of nearly 3,000,000 milreis, with revenues derived chiefly from export duties. The state has no debt, external or internal, but with its slender resources and sparse population public education is but little developed. Primary instruction is offered in some 200 elementary schools, with some 7,000 pupils enrolled, and the state supports a normal school, five secondary schools, and faculties of law and pharmacy.

Maranhão

Area: 172,285 sq.m.—Population (1920): 874,337—Capital: São Luiz, population 52,929.

Seventh in area and eleventh in population among Brazilian states, Maranhão is about 14,000 square miles larger than California, with just twice as many inhabitants as the District of Columbia.

Maranhão is one of the north coast states of Brazil, with a seaboard of nearly four hundred miles along the Atlantic. The name is derived from the one originally applied to the Amazon River, for the original

captaincy of that name extended west to include the mouth of that stream. But Portuguese colonization of this region did not actually take place until a century after the discovery of Brazil. Even then it was prompted by the efforts of the French to establish an equatorial empire in Brazil at the beginning of the seventeenth century. The name of the capital, São Luiz, is a reminder of the French founders of the settlement in 1612, who named it after Louis XIII of France. For a hundred and fifty years the state of Maranhão was separate from the rest of Brazil and directly dependent on the home government in Lisbon. But in 1772 it was incorporated into the vice-royalty, and, greatly diminished in area, it became a province of the empire and later a state in the federal union.

A large portion of the state is sandy, low-lying coastal plain to which several considerable rivers descend from the mountains and table-lands in the south. From north to south the state stretches over 650 miles from within one degree of the Equator at the extreme north to 10° S. The climate along the seacoast is singularly equable, a maximum temperature of 90° F. being reached in every month of the year at the capital. But the highest temperature recorded there in eight years was 33.1° C. or 91.6° F., with a minimum of 20.2° C. or 68.4° F. But what is most remarkable about the climate is the tremendous rainfall, averaging more than 74 inches a year, with only 147 days on which rain fell. The season of heavy rains is from December to July, August to November averaging only three days of rain a month.

In the interior plains of the state, however, though the maxima of temperature are higher, the minima are lower, and the mean temperatures somewhat lower.

The humidity is likewise less and the rainfall only about half as much. Still farther south among the mountains of the state, the highest point of which attains over 4,400 feet, temperatures as low as 50° F. are recorded in May and June, and the nights, as so frequently is the case in the tropics, are often chilly.

Among the tremendous natural resources of the state, first place must be accorded to forest products, especially hard woods and dyewoods, gum and rubber trees, oil-producing nut trees, and vegetable fibers, though the, as yet unexploited, mineral resources are known to be very valuable. Agriculture is sufficiently developed so that cotton, rice, and manioc are exported, while sugar cane, coffee, and tobacco are raised for domestic consumption.

Maranhão has neither outlet nor markets to the south, so that practically all of its commerce is through the northern port of São Luiz, which, commercially speaking, is closer to New York than to Rio de Janeiro. These exports were valued in 1922 at over 33,000,000 milreis, chiefly raw cotton, rice, hides, and cotton seed. Cattle raising is a large and growing industry, the state having 835,000 head of beef cattle in 1920. Manufacturing is limited to a dozen cotton mills, three large sugar mills, and a number of smaller plants.

Two of the principal rivers in the state are navigable for several hundred miles each, the Itapicurú, which flows down to the bay in which is located the island and seaport of São Luiz, and the Parnahyba on the eastern boundary with the state of Piauhý, while some of the other rivers offer short navigable stretches. Of highways there are practically none, but recently the railroad has been opened to traffic from the capital to Flores on the Parnahyba, opposite the

capital of Piauhy, Therezina, a distance of approximately 280 miles.

The state government comprises a president elected by direct vote for a four-year term with a prohibition against immediate reelection, and a single-chambered congress of 30 deputies elected in like manner, for a term of three years. For internal administration the state is divided into 58 municipalities, the most important of which is the capital, São Luiz. The state budget in 1922 included expenditures of 7,715,140 milreis, considerably in excess of the revenues, which latter in Maranhão, contrary to the usual rule in Brazil, came chiefly from consumption and production taxes, not from export duties. The state has a foreign debt of 18,000,000 francs, and in 1923 contracted for a loan of \$4,500,000 with American bankers for port works and other public improvements. In addition it has an internal funded and floating indebtedness of some 4,000,000 milreis. Public education is offered in some 213 elementary schools with some 21,000 pupils in attendance. One normal school, one high school, and a faculty of law are likewise maintained by the state, there being in addition a number of private schools, both elementary and secondary.

Matto Grosso

Area: 570,290 sq.m.—Population (1920): 246,612—Capital: Cuyabá, population 33,678.

Matto Grosso, the "great bush land," ranks second in area among Brazilian states, but twentieth or last in population. Considerably more than twice as large as Texas, with a population but a little larger than that of Delaware, Matto Grosso has only one inhab-

itant for every 2.3 square miles, or less than .5 per square mile, and is the least densely populated state in the Brazilian Union.

Lying in the western central portion of Brazil, Matto Grosso, like the states of Amazonas and Goyaz already considered, is an inland state, and, like them also, is territory that did not fall within the original limits assigned to Portugal in the western hemisphere. Matto Grosso was opened up by the restless pioneering Paulistas after they had been pushed out of their possessions in Minas Geraes by the overseas adventurers from Portugal in the so-called war of the *emboabas* in 1709, described in an earlier chapter. It began, therefore, as a district of the captaincy of São Paulo in 1719, to be converted a hundred years later into an independent captaincy, then a province of the empire, and then in 1889 a state of the federal union. Until very recent years a great part of Matto Grosso was unexplored territory about which little or nothing was known. The results of the expeditions of General Rondon have furnished for the first time complete and accurate information concerning large portions of the state, but much of it is still primeval wilderness untouched by the foot of white men.

Most of Matto Grosso lies on the great Brazilian plateau, and in that state is located the watershed which separates the Amazon Basin from the basin of the Plate River system. The plateau of Matto Grosso in the eastern portion of the state, like its counterpart in Goyaz, diverts the waters in all directions. The western portion of the state, along the Bolivian border, following the Guaporé northwest and the Paraguay south, is low, marshy land, unhealthful for habitation, though of immense fertility. In the southeast is the

valley of the Paraná, along the east the valley of the Araguaya, and toward the north the table-land descends to the basin of the Amazon.

Gold deposits of unusual richness led to the opening up of the state, but gold mining has long since ceased to constitute an important economic activity of the state. The vast grass-covered plains of Matto Grosso offer the most extensive grazing areas still left unoccupied in the world, and in 1920 the beef cattle numbered 2,831,667. This is the most important activity of the state today, agriculture being in a very rudimentary state. Though the southern tip of Matto Grosso reaches into the temperate zone, the great bulk of it lies north of the Tropic of Capricorn, and the climate is hot. At Cuyabá, the capital, just on the edge of the Matto Grosso Plateau and at an elevation of some five or six hundred feet above sea level, the maxima and minima recorded were 100° F. and 50° F., respectively, with a mean annual temperature of 80° F. The annual rainfall there recorded was something over 57 inches, with an average of 130 days of rain. In other portions greater extremes of temperature are encountered, freezing temperatures being not unknown.

Aside from its immense natural grazing lands, Matto Grosso possesses many other natural resources. Forest products of great variety and in enormous quantities exist in its tropical jungles, and the mineral deposits already investigated are merely awaiting exploitation. A good part of the boundaries of Matto Grosso on all sides but the north consist of navigable or partly navigable streams. The Paraguay connects southern Matto Grosso with the Atlantic through the rivers of the Plate system, and the Araguaya, though

broken by various falls, affords water communication to the north. But the internal transportation facilities of the state are almost undeveloped. A single railroad line cuts across the southern portion of the state from Itapura on the Paraná to Porto Esperanza on the Paraguay, a distance of 500 miles, connecting that portion of the state with São Paulo, to which most of the limited exports of the state go. In the extreme northwestern corner of the state is the Madeira-Mamoré Railway, some 200 miles in extent, but this is chiefly of economic importance to Bolivia rather than Brazil.

A president elected by direct popular vote for four years and ineligible for immediate reëlection, and a single-chambered assembly of 24 deputies elected for two-year terms, constitute the political organs of government. For purposes of internal administration the state is divided into 22 municipalities, the most populous of which is the capital, Cuyabá. With the total receipts of the state amounting to less than 5,000,000 milreis, the amount available for public education is extremely limited. Some 165 public elementary schools provide instruction for almost 9,000 pupils, and the state maintains a high school at the capital.

Minas Geraes

Area: 229,270 sq.m.—Population (1920): 5,888,174—Capital: Bello Horizonte, population 55,563.

First in population among Brazilian states, though only fifth in area, Minas Geraes, the “general mining district” of colonial days, is larger in area than any American state except Texas, and falls only some 36,000 square miles short of equaling that vast common-

wealth, and has a population slightly in excess of that of Ohio.

Virtually neglected for two centuries after the first discovery and settlement of Brazil, this great interior region, shut off from the sea by the eastern or maritime range of mountains, owed its development, like California in the United States, to the rush for gold, beginning early in the eighteenth century. A hectic, lawless period followed during which the region was for a while part of the captaincy of São Paulo, and after 1721 a separate captaincy. So it became a province of the empire and a state of the federal union.

Gold and precious stones were the lure that attracted adventurers to this interior region, one of the four states of Brazil without a seaboard on the Atlantic, but thousands upon thousands who came to mine remained as settlers and became cattlemen and farmers. So it happened that, although the gold diggings and the diamond fields soon diminished in importance, Minas Geraes was still the most populous district in Brazil at the beginning of the nineteenth century, a position of preëminence retained by her ever since, in spite of the phenomenal development in the last fifty years of her southern neighbor, São Paulo.

Minas Geraes is a rough quadrilateral perched atop the great Brazilian Plateau where its elevations are the highest. Mountainous and hilly throughout practically its entire extent, the state is crossed by two principal ranges running north and south with the valley of the São Francisco between them, and by another main range from east to west in the southern portion that constitutes the watershed between the São Francisco Basin to the north and the Rio Grande to the south. The general slope of the state is towards

the north and the west, though a few minor rivers drain away to the Atlantic on the east through gaps in the Serra do Mar or maritime range.

Minas Geraes stretches from latitude 14° S. in the north to within a few miles of the Tropic of Capricorn in the south, a distance of more than six hundred miles. Geographically, it lies wholly within the tropics, therefore, but climatically only the river valleys in the north and west exhibit tropical conditions. Throughout the elevated portions of the state subtropical and temperate climates are encountered. Bello Horizonte, the capital, situated almost exactly on the 20th parallel of south latitude, at an elevation of some 2,800 feet above sea level may be taken as a fairly typical example of the climate encountered in the major portion of the state. With maxima and minima varying between 96° F. and 36° F., the mean annual temperature is only 68.5° F. The annual rainfall is heavy, almost 60 inches, but from May to September there is very little rainfall, the total number of days with rain being 123.

In the southern tip of the state there are numerous watering places which are favorite summer resorts for Brazilians from Rio and São Paulo, for, although the temperature in the daytime may run up into the nineties, the nights are always extremely cool, even the hottest months recording temperatures as low as 45° F. In the winter months, from April to September, freezing temperatures are recorded in these and many other spots of southern Minas Geraes.

The natural resources of Minas Geraes are chiefly mineral. Gold and diamonds are regularly extracted there, though in greatly diminished quantities when compared with colonial days, and today the chief min-

eral wealth is in the enormous iron regions and the extensive manganese deposits. The former have remained virtually untouched, though their tremendous extent cannot even be accurately estimated. Conservative estimates calculate the iron deposits of Minas at 3,500,000,000 tons of high-grade ore. Manganese has been extracted for some years in considerable quantities and figures largely among the exports of the state.

But although the name of the state is more than justified by reason of its great mineral wealth, the real economic development of Minas Geraes is based on agriculture, stock raising, and manufacturing. Not only are great quantities of coffee, sugar, rice, and tobacco grown in the state, but also cereals and other products of subtropical and temperate regions. As a cattle state Minas Geraes ranked second in 1920, with 7,333,000 head of beef cattle. With nearly 5,000,000 swine it ranked first in that branch of the livestock industry, as it did also in the number of horses and mules, amounting to more than 1,500,000 head.

In contrast with the other states of Brazil so far considered, Minas Geraes has developed an important manufacturing industry. Water power has been harnessed in a number of towns for industrial purposes, the manufacturing center of the state being at Juiz de Fora, 172 miles by rail from Rio de Janeiro. Dairy products constitute an important industry, southern Minas supplying the bulk of those products for the federal capital. Cotton manufactures, refined sugar, tobacco products, dressed meats, and leather products are among the varied manufactured products of the state.

The exports of the state exceeded 500,000,000 mil-

reis in value in 1921, more than half of which were represented by agricultural products, among which coffee was by far the most important, with tobacco and sugar next. The livestock industry contributed about one-third of the value of the exports, with mining next (60,000,000 milreis) and manufacturing last with 35,000,000 milreis.

In railway mileage in operation, Minas Geraes ranks along with São Paulo far ahead of any of the other states, with more than 4,000 miles. The southern portion of the state is well supplied with railroads and the main line of the government owned and operated Central do Brasil runs a distance of 630 miles from Rio north to Pirapora on the São Francisco River where the stream becomes navigable. This is the line that will ultimately continue to Belém at the mouth of the Amazon.

Shut off entirely from access to the sea, Minas sends the bulk of her foreign trade through Rio de Janeiro, some mineral exports, however, going through Victoria. In spite of the relatively great railroad mileage, however, the agricultural and commercial development of Minas awaits more extended transportation facilities, as there are no navigable rivers giving direct water transportation to the seaports, and the system of highways has barely begun to be developed.

The state government of Minas comprises a president elected by direct popular vote for four years, with ineligibility for immediate reelection, and a bicameral congress of 48 deputies and 24 senators, the former elected simultaneously for four years and the latter for eight years, one-half being elected every four years. In 1922 the expenditures of the state amounted to 78,446,176 milreis, which at the then rate

of foreign exchange was the equivalent of about \$10,000,000, though at the normal rate of exchange it would represent almost the double of that. The foreign debt of the state at that time amounted to 131,227,000 French francs, and the internal funded debt to 58,988,600 milreis.

In the field of public education, Minas Geraes, though essentially a rural state with no large cities, presents a very good showing. At least ten per cent of the expenditures of the state are devoted to aiding public elementary instruction in the 178 municipalities into which the state is divided for purposes of local government. The number of public elementary schools well exceeds 2,000, besides nearly a thousand private elementary schools. The state also maintains a number of secondary and normal schools and faculties of law, mining, engineering, dentistry, and pharmacy.

Minas Geraes was one of the first states to introduce the real property tax and gradually to supplant the export tax as the chief source of revenue with other forms of taxation.

A word must be said, before leaving this great state, of the commanding position occupied by it in the political affairs of the nation. As it contains nearly a fifth of the total population of the country and is represented in the lower house of the national congress by 37 deputies out of the total of 212, its political pre-eminence is obvious. This is perhaps most strikingly reflected in the fact that Minas Geraes has already furnished three presidents of the republic, for in Brazil, owing to the absence of organized party government, there is no selecting of candidates from doubtful or pivotal states in the hope of swinging such

states into line at the election. The Mineiros, as the inhabitants of the state are commonly called, play a very important rôle, therefore, in the politics of the nation, and indeed with their neighbors, the Paulistas, may be said to control the political destinies of the federal government.

Pará

Area: 526,246 sq.m.—**Population (1920):** 983,507—**Capital:** Belém, population 236,402.

Third in area and eighth in population among Brazilian states, Pará is almost exactly twice as large as Texas and a little greater than Florida in population, with a density of less than 2 inhabitants per square mile.

Pará might more appropriately have been called Amazonas rather than its neighbor to the west, for while the upper Amazon is known by several names, the lower stretches lying within the state of Pará are always referred to as the Amazon. Pará, in fact, is an Indian name meaning Mother of Waters or Great Water, and was used by the Indians to designate the great arm of the sea on which the city of Belém is located. The mouths of the Amazon marked the western limits of the territory originally assigned to Portugal, but no attempt at colonization was made by the Portuguese until 1616, when, after driving the French invaders from São Luiz, a fortress was erected on the site of the present capital of the state. As the expedition started on Christmas Day, 1615, the fort was named Our Lady of Bethlehem, the present shortened form, Belém, being the Portuguese form of Bethlehem. Outside of Brazil, however, this city is re-

ferred to as Pará, a metamorphosis suffered by a number of other Brazilian seaport state capitals.

Pará, or Grão Pará, as it was commonly known in the colonial period, was linked with Maranhão until 1772, and after that it was a separate captaincy and subsequently a province of the empire, being shorn of the present state of Amazonas in 1850. At the beginning of the republican era in 1889 it had but 300,000 inhabitants, including wild Indians.

Essentially, Pará is the basin of the lower Amazon. Its seacoast of 600 miles, which starts on the boundary between Brazil and French Guiana, is marked by the enormous estuary of the Amazon, 185 miles from tip to tip. But the flood water lowlands in Pará are of relatively smaller extent than in its sister state of Amazonas, for the lower stretches of the Amazon are more crowded by the slopes from the Guiana Highlands on the north and from the Brazilian Plateau on the south. These slopes contain great rolling plains known in Brazil as *campos*, the soil, vegetation, and climatic conditions of which are somewhat distinct from those of the river valley proper.

The Equator cuts across Pará as it does across Amazonas, and the climate is in general distinctly equatorial. But this, as has already been pointed out, does not mean excessively hot temperatures. The highest temperature recorded in ten years at Belém, right at sea level, was 94.3° F. It does mean heavy rainfall, high humidity, and a marked difference between day and night temperatures, with little variations from one month or season to another. The annual rainfall at Belém is in excess of 94 inches, a record not exceeded in many portions of the world, and the number of days on which it rains is 243, or two days out of

every three. In fact the natives of Belém assert that it rains *every* afternoon, around three o'clock, with such unfailing regularity that all business and social engagements are designated as "before the rain" or "after the rain." The most remarkable feature of the climate, however, is the fact that night temperatures of as low as 64 to 68 degrees F. are recorded in every month of the year. This, combined with the prevailing winds from the east and northeast, make the climate of this city, lying almost on the Equator, quite different from what would naturally be thought of it, and according to the testimony of many European inhabitants, not merely healthful but even pleasant.

The great Amazon with its affluents, influences not merely the topography, climate, and products of Pará, but also its whole economic development. Practically the whole population of the state is gathered along the shores of its mighty streams, and all its commerce is carried on by means of these waterways. The economic history of Pará, like that of its sister state Amazonas, has been largely identical with the history of the rise and fall of the rubber industry, and that industry became possible only because the great Amazon River system made it relatively easy to transport the rubber from the vast jungles of Amazonia to ocean steamers ascending the Amazon for hundreds, and, with its tributaries, for thousands of miles.

Rubber is by no means the only natural resource of Pará. But the profits to be made in the business by promoters and laborers alike, during the boom years, led to the abandonment of practically every other form of economic activity, so that even staple foodstuffs that could well be raised in sufficient quantities for

domestic consumption by the inhabitants were neglected and had to be imported at great expense. With the collapse of the rubber boom, therefore, everything collapsed, and the period since that collapse in 1911 and 1912 has been one of unprecedented economic depression in the state.

Of other natural resources, the Brazil nut, or *castanha do Pará*, is the most important, and has increased as an article of export in the last ten years coincidently with the decline of rubber. Next in importance come the timber products, which though virtually inexhaustible in extent are difficult of exploitation because the various varieties of valuable woods found in the forests of Pará are not bunched in groves but intermingled as isolated trees throughout its vast and almost impenetrable jungles.

Among agricultural products, as yet but little developed, the most important for export are manioc, cacao, and rice, though investigations are now under way with a view to raising rubber in plantations as in the East. Cattle raising, curiously enough, could become an important activity in this equatorial state, over 600,000 head of beef cattle being enumerated in 1920. At present this is largely centered in the great island of Marajó, lying in the estuary of the Amazon, one of the largest fluvial islands in the world, with its 13,668 square miles, appreciably larger than the state of Maryland.

Aside from its thousands of miles of navigable streams, Pará has practically no means of internal communications, large areas of the state being still unexplored. One railroad runs from Belém to Bragança on the Atlantic, about 200 miles long with its spurs, and another line runs a short distance along

the Tocantins River near its mouth. From Belém south a government line is planned to connect up with the main line of the Central now running as far as Pirapora in Minas Geraes.

The state government comprises a governor elected by direct popular vote for four years, with no prohibition against immediate reelection such as is found now in all of the other states of Brazil, and a bicameral legislature of 30 deputies elected for three years and 18 senators elected for nine years, one-third of the latter being renewed each triennium. Minority representation is prescribed for the election process to both houses of the state congress.

Owing to the depression caused by the collapse of the rubber market, the finances of the state government have been completely upset. Expenditures regularly exceed revenues, increasing deficits result even with aid from the federal government, and payments on the foreign debt, which is considerable, have been irregular. For 1922 the budgeted expenditures were 9,654,757 milreis, with estimated receipts somewhat higher, the authorities making a heroic attempt to keep the former within the latter.

For internal administration the state is divided into 56 municipalities, of which the capital Belém is incomparably the most important. This great seaport is in fact the fifth city in Brazil. None of the other cities in Pará attain 50,000 population, even with their surrounding districts. In spite of its essentially rural population, and its financial difficulties, the state is relatively advanced in public education, with nearly 600 public elementary schools enrolling some 17,500 pupils, three public secondary schools, and faculties of law, pharmacy, and dentistry.

Parahyba

Area: 21,591 sq.m.—Population (1920): 961,106—Capital: Parahyba, population 52,990.

Parahyba, though fifteenth in area, is tenth in population among Brazilian states. In geographical extent it is just about half as large as Tennessee, while in population it is almost exactly equal to Florida.

Officially, the state is known as Parahyba do Norte, for in colonial times there was a captaincy of Parahyba do Sul as well. But this latter captaincy was merged in the early days with adjacent territory and disappeared, so the state is generally referred to simply as Parahyba. Both captaincies were named after rivers, and the two rivers must still be distinguished by the geographical suffixes. Pará in the Tupy language was the generic designation for water or river, and combined with suffixes indicated the character of the stream. So Parahyba meant bad or un-navigable river, and it is not strange that the name was applied to more than one eastern stream of Brazil, as most of them would justify that designation.

Parahyba claims the distinction of being the easternmost state of Brazil, though the exact location of the easternmost point has not yet been definitely settled. With a short coast line, some 80 miles in extent, the state stretches westward some 280 miles. First comes a low lying coastal plain, gradually sloping up to the plateau of Borborema, the ultimate extension of the coastal mountains toward the north. Elevations of 3,000 feet are attained within the state, the differences in altitude serving to accentuate the climatic variations.

Lying between degrees 6 and 8 south of the Equator,

Parahyba presents a coastal climate that is uniformly hot, humid, and with heavy rainfall. As the hilly plains are reached, variations in temperature become more pronounced and the rainfall is diminished. On the elevated plateaus of the western portion of the state, considerably cooler temperatures are recorded and the rainfall has become so diminished and so concentrated as to place a large part of the state of Parahyba in the arid regions of northeastern Brazil, the striking characteristics of which have already been noted in the description of Ceará. Here, within the confines of Parahyba also, the federal government is offering relief by the building of great dams and reservoirs which will put thousands of acres of now almost useless land under cultivation.

The products of the state, in spite of its relatively small area, are sufficiently varied, due to these differences in climatic conditions. On the wooded slopes of the eastern hills large areas of valuable timber lands await exploitation. Its grassy plains offer pasturage for nearly half a million head of beef cattle, with an even greater number of goats, and nearly 300,000 head of sheep.

Agriculture is the main activity of the state, and among agricultural products cotton takes first rank as an export crop. The state is unusually favored for the production of cotton, and the finest quality grown in Brazil is raised there. Next to cotton come sugar cane, coconuts, and tobacco, among agricultural products especially for export. The value of exports from the state in 1922 was calculated at 15,000,000 milreis, mostly through Cabedello, the port of the capital Parahyba. A considerable amount of Parahyba products, however, go direct to Pernambuco to the south, and

some of these are exported through Recife, the capital of the latter state.

Of navigable streams the state has none, the principal river from which it derives its name being characterized by its Indian designation as unnavigable. But of railroads the state possesses some 200 miles, which connect the capital and the coastal plain with the states of Rio Grande do Norte to the north and Pernambuco to the south. The interior of the state is still almost isolated from the coast, however, for the railroad only penetrates about a third of the distance from the coast to the western border.

The state has a president chosen by direct popular election for a term of four years and ineligible for immediate reelection. Its legislature is a unicameral assembly of 30 deputies chosen by popular vote for a four-year term. The expenditures of the state government amounted in 1922 to 5,755,000 milreis, being somewhat in excess of the revenues. But until June, 1922, the state had no indebtedness of any kind. In that year an internal loan of 8,000,000 milreis was authorized for improving the water supply and installing a sewage system in the capital.

The state is divided into 39 municipalities for purposes of local government. Public education, conducted here as elsewhere in Brazil by the municipalities with state aid, was offered in some 500 public elementary schools, with an enrollment of about 15,000 pupils. In addition, the state maintains a high school, a normal school, and a college of agriculture.

CHAPTER XIV

THE INDIVIDUAL STATES (*Continued*)

Paraná

Area: 77,180 sq.m.—Population (1920): 685,711—Capital, Curityba, population 78,986.

PARANÁ ranks eleventh among Brazilian states in area and twelfth in population, being almost exactly the size of Nebraska in extent and about twice as populous as Vermont.

Until as late as 1853 Paraná was merely a district of São Paulo, so that it is the youngest of Brazilian states so far as separate existence is concerned. Created a province of the empire in that year, Paraná took its place as one of the autonomous states of the federal union in 1889. Taking its name from the river that bounds it on the west, another variation of the Tupy Indian root word for river, which in this case means "enormous river," Paraná presents many characteristics that differentiate it markedly from all the states so far considered.

First is the outstanding fact that except for a segment in the extreme north, the state lies wholly in the temperate zone. Secondly, the state extends westward from the Atlantic clear to the international boundary of Brazil with its western neighbors. It is true that this distance is only about 400 miles, or about one-seventh as great as the maximum width of the country, for at Paraná Brazil diminishes rapidly to a relatively

narrow stretch extending southward, but owing to its contiguity with Paraguay and Argentina, the state nevertheless derives an added importance from the point of view of national defense.

Third in importance is the fact that the coastal plain along the Atlantic, which in some of the northern seaboard states already considered has a relatively large economic importance, is in Paraná almost crowded into the sea. From the great Bay of Paranaguá, one of the largest in Brazil, an ascent from sea level to 3,000 feet, the elevation of the capital, is made by rail in 50 miles, and as the crow flies is but little over half that distance. The peak of the serra is about halfway between Antonina on the bay and Curitiba on the heights. The seacoast itself is only 112 miles in extent, broken by the splendid harbor of Paranaguá.

In the fourth place, much the major portion of the state lies at considerable elevations, the general slope of the state being toward the west and north, but various ranges thrust out well toward the basin of the Paraná on the western border of the state.

Geographical location combined with altitude have given to Paraná climatic conditions fundamentally different from those which have already been noted in the tropical and subtropical states of Brazil. These climatic conditions in turn, combined with certain geologic peculiarities and variations in soil composition, have produced a very different flora, and have attracted a very different type of immigration from those encountered in northern Brazil, so that both natural products and population present peculiarities.

Though elevations as high as 6,000 feet are encountered in the coastal range, the average elevations in most of the settled portions of the state range from

2,000 to 3,000 feet above sea level. Typical conditions may be said to be encountered in and around the capital at the latter elevation. Here we encounter a truly temperate climate attaining maximum temperatures as high as 99° or 100° F. in the hottest season, but minima as low as 16° F. or well below freezing in winter, the mean temperature for the year being 61.5° F. Not only in the low temperatures reached and in the low mean temperatures does this climate differ from the tropical climate characteristic of so much of Brazil, but also in the regular variation of the four seasons with which we are familiar, in place of the two, rainy and dry, which are the only important variations known to a good part of the country. The annual rainfall in the capital is heavy, 57 inches, but it is fairly equally distributed throughout the year, another distinguishing characteristic of the region.

In the settlements grouped around the Bay of Paranaguá, subtropical conditions are encountered, while in some of the towns of the state situated at a higher elevation than the capital, even colder conditions are encountered. Generally speaking, however, the great mass of tropical plants which cannot stand freezing temperatures are absent from the Paraná uplands. Instead of tropical fruit and nut trees and the cabinet and dyewoods of the northern jungles, the characteristic forest product of Paraná is the stately *Araucaria* or Paraná Pine, while the vast plains of the western portions of the state are covered with the maté plant. These two kind of trees constitute the chief natural resources of the state, and their products constitute the bulk of the exports.

Agriculture is well developed in Paraná, and in addition to the now familiar Brazilian crops of coffee,

sugar cane, tobacco, cotton, rice, and tropical fruits raised in the lowlands of the state, we find in Paraná the characteristic products of temperate climes, above all fruits and cereals, notably wheat and barley. Here immigrants from Europe could find conditions of soil and climate very similar to their own haunts, and not merely Italians, Portuguese, and Spaniards, but even Germans, Poles, and Swiss. So Paraná, which lay practically dormant during the first three hundred and fifty years of Brazilian history, has been developed since the middle of the nineteenth century largely by the process of colonization by government initiative. A wholly different type of inhabitant has resulted, therefore, and a wholly different form of economic organization has developed. For a long time these isolated and largely self-sufficient colonies produced little for export, and lack of transportation facilities made it almost impossible to market whatever surplus might be produced. But the development in recent years has been rapid, and in 1922 the value of the exports was calculated at over 51,000,000 milreis, chiefly maté, timber, dairy products, tobacco, fruit, cattle, and cereals.

The cattle industry of the state is an important factor of wealth, the beef cattle numbering over 500,000 in 1920 and the swine nearly 800,000. Among the mineral resources, one of the most promising is a low grade of coal, just beginning to be developed, but the most striking of the potential resources is in the enormous waterfalls, the Iguassú Falls alone having a potential horse power estimated at 14,000,000.

The railroad mileage of the state is considerable in relation to its area, there being almost 700 miles in operation. The trunk line from São Paulo to Rio

Grande do Sul crosses the eastern portion of the state from north to south, and from this a line branches off eastward, and passing through the capital descends to the seaports on the Bay of Paranaguá, one of the most remarkable and picturesque pieces of mountain railway in the world.

The state government comprises a president elected by direct popular vote for four years and ineligible for immediate reëlection, and a unicameral congress of thirty deputies elected for a two-year term. The bonded debt of the state amounts to more than 50,000-000 milreis, with a considerable floating debt besides. The expenditures in recent years have amounted to around 14,000,000 milreis, and have generally been in excess of the revenues. About 10 per cent of the expenditures were for state aid to primary education. The 48 municipalities into which the state is divided are primarily charged with the support of public elementary education, the number of public elementary schools being in excess of 600, with an attendance of some 24,000 pupils. In addition, there are a number of secondary schools supported by the state, and a university at the capital with various faculties.

Pernambuco

Area: 38,322 sq.m.—Population (1920): 2,154,835—Capital: Recife, population 238,843.

Though only thirteenth in area among Brazilian states, Pernambuco occupies fifth place in point of population and has only 18,000 less than the fourth most populous state, Rio Grande do Sul. In density of population, with 56 inhabitants per square mile, it ranks among the first states of Brazil. In geographi-

cal extent Pernambuco is a little larger than Indiana, and in population a little smaller than Virginia.

Pernambuco has the longest continuous history of any of the Brazilian states. Early in the sixteenth century it was already the scene of struggles between French corsairs and Portuguese warships, and when in 1534 the captaincy of Pernambuco was assigned to Duarte Coelho Pereira, it proved to be the only feudal captaincy that really permanently prospered, ultimately reverting, however, like all the rest of the feudal grants, to the Crown.

The history of Pernambuco, which formerly included the little Alagoas district, now a separate state, is almost a continuous series of stirring episodes. Sacked by freebooters, captured by the Dutch who had their seat of government there from 1630 to 1654, center of the colonizing efforts to the north where they fought with Indians and French for the possession of the land, and the scene of numerous serious internal disturbances, Pernambuco has a romantic history of which her sons are proud.

The state is located in the northeastern shoulder of Brazil and claims to present on its seacoast the easternmost tip of the South American continent. At any rate, Recife, the capital, is the port of Brazil that is nearest to Europe, a fact which has in part accounted for the prosperity of the district today as well as in colonial times. The seacoast is only 111 miles in extent, and the state extends westward in an irregular elongated fashion for 425 miles.

Four distinct zones are distinguishable in the state, proceeding from east to west, which differ in soil, climate, and products one from another. First comes a narrow stretch of low-lying sandy littoral, suitable

only for coco and mango trees. Back of this is the "matta" or jungle, thickly forested land, well watered, fertile, with a characteristically tropical climate, averaging some 40 to 50 miles in width. Then comes the "catinga," a curious appellation employed also to designate the characteristic sweaty odor of the blacks, which is characterized by the gradual elevation of the terrain towards the central plateau and by a rather more scrubby vegetation. Finally comes the "sertão," or plateau interior, which constitutes the major portion of the state.

The "matta" is rich in forest products and is ideal for the raising of sugar cane, the chief agricultural activity of Pernambuco from earliest colonial times. The "catinga," less humid, is especially adapted to cotton culture, another ancient industry of the region. The "sertão," on the other hand, presents vast elevated plains with little vegetation other than grasses suitable for the livestock industry. Here in the interior we encounter again the climatic conditions characteristic of so much of the northeastern part of Brazil, long seasons without rainfall and occasional periods of serious drouth, such as have already been described in dealing with Ceará and Parahyba to the north of Pernambuco.

The chief activities of the state are agricultural, and the chief exports, amounting in 1922 to more than 100,000,000 milreis, are sugar and cotton, Pernambuco producing more sugar than all the rest of the Brazilian states combined. Other agricultural exports include rice, beans, coffee, cacao, and tobacco. The livestock industry is represented by nearly 750,000 head of beef cattle and over 1,200,000 sheep and goats. Sugar mills and refineries constitute the chief manufacturing in-

dustries for export, but dairy products, rum, cotton goods, shoes, hats, and chocolate are important manufactures for local consumption.

The rivers of the state are small and of no value for transportation, save the São Francisco on the boundary with Bahia to the south. Of railroads the state has considerably over 500 miles in operation, connecting the capital with the capitals of the neighboring states, Parahyba and Alagoas. But towards the interior there are only two short lines, barely reaching the inland plateau, and the great "sertão" is still but sparsely settled and little developed.

The government of the state includes a governor elected for four years by popular vote and ineligible for reëlection, and a bicameral legislature of 30 deputies elected for three years, and 15 senators elected for six years. The expenses of the state government amounted in 1922 to more than 26,000,000 milreis, considerably more than the revenues. The external debt of the state amounts to almost 2,000,000 pounds sterling and the internal bonded debt to about 20,000,000 milreis, besides 800,000 milreis of floating debt.

The state is divided into 59 municipalities for purposes of local government and internal administration, the most important by far being the capital, Recife, commonly called Pernambuco, which is the fourth city of Brazil, in point of population, and also fourth seaport in point of commerce, being a port of call for most lines to and from Europe. Primary education, supplied by the municipalities with state aid is served by almost a thousand public elementary schools with some 61,000 pupils in attendance, while public secondary education is offered in a state high school and a normal school, there being a number of private

schools in addition, offering both elementary and secondary instruction. The law faculty at the capital, an institution of first rank, is maintained by the federal government.

Piauihy

Area: 94,433 sq.m.—Population (1920): 609,003—Capital: Therezina, population 57,500.

Tenth in area and fourteenth in population among Brazilian states, Piauihy, an Indian name meaning “River of the Spotted Skin,” is about the size of Oregon in geographical extent and of Rhode Island in population.

Piauihy is classed among the maritime states of Brazil since it has an Atlantic seaboard. But the state narrows down to such an extent in the north where it reaches the ocean that its coastal extent is barely 50 miles. Moreover, the sandy low-lying coast has no harbors, and the only ports it boasts are at the delta of the Parnahyba River, which constitutes the boundary line between Piauihy and Maranhão, and even these are very inferior ports not available for deep draft shipping.

Piauihy was originally included in the captaincy of Maranhão, and was separated off as a distinct captaincy in 1811. But unlike the rest of the seaboard states of Brazil, settlement and colonization did not in Piauihy proceed from the seacoast to the interior. It was the advance guards of the roving “bandeirantes” from São Paulo that first penetrated the region from the south and established the livestock industry which is still the chief economic activity of the state. From north to south the state gradually rises in elevation,

broken by many transverse ranges separated by river valleys. On the west the Parnahyba River constitutes the state boundary for almost the entire distance, while on the east almost continuous ridges, rising at points to the dignity of mountains, separate Piauhý from the states of northeastern Brazil and from Bahia on the southeast and south. But the highest point in the state is only some 3,300 feet above sea level, and the characteristic topography of the state is rather that of elevated rolling plains.

The chief natural resources of the state are represented by forest products of a tropical character, one of the principal ones of which that has recently come into prominence is the babassú palm, producing the babassú nut, rich in a valuable vegetable oil. Agriculture is but slightly developed, though soil and climatic conditions are highly favorable. The great lack is adequate transportation. Aside from the navigation by small craft of the Parnahyba River, the state is lacking in waterways, has virtually no highways, and only one minute stretch of railway is in operation in the whole state, that running from the only seaport, Amarração, south through the town of Parnahyba, about fifteen miles in all. Other roads have been surveyed, however, and actual construction begun on some of them.

The great industry of the state is the livestock industry, the number of beef cattle in 1920 being more than a million, while there were more than half a million sheep and goats. Livestock, hides, and dried meats figure prominently among the exports of the state, which in 1922 were valued at more than 17,000,000 milreis. But much of the exporting from the state is done through the port of Tutoya, farther out in the

delta of the Parnahyba, and as this port belongs to Maranhão, some of the Piahy exports are credited to her neighbor state.

The climate of Piahy is very similar to that of its neighboring state, Maranhão. In the low portions it is hot and humid, but in the higher portions of the interior it is dry and agreeable, though with a high mean temperature.

A governor chosen by popular vote for four years, together with a unicameral legislature of 24 deputies elected for the same period, with provision for minority representation, constitute the political organs of the state, which is divided for purposes of internal administration into 39 municipalities. The total expenditures of the state have amounted in recent years to less than 2,000,000 milreis, there are no foreign loans and the internal indebtedness is small, revenues as a rule exceeding expenditures. But there is little money available for education and there are less than a hundred public elementary schools in the whole state, with about 3,000 pupils in all. There were, however, almost an equal number of private elementary schools. One high school and a college of agriculture represent the public institutions of secondary and higher instruction.

Rio de Janeiro

Area: 16,386 sq.m.—Population (1920): 1,559,371—Capital: Nictheroy, population 86,238.

In area, Rio de Janeiro ranks eighteenth among Brazilian states, but in population it ranks sixth, and in density of population it stands in first place with more than 95 inhabitants per square mile. In area the state is approximately equal to twice the size of New

Jersey, while in population it is a little less than half as large as that state.

The state of Rio de Janeiro must not be confused with the federal district and capital of Brazil of the same name. Until 1834, it is true, the capital of the empire was a municipality of the province of Rio de Janeiro, to which it gave its name. But now, although the state surrounds the federal district on three sides and exports most of its products through that port, it is politically wholly distinct.

In spite of its small extent, the state of Rio de Janeiro is in several respects one of the most important of the units in the Brazilian federation. It ranks first, as has been stated, in density of population. In the ratio of railway mileage to area it likewise ranks first, and even as to total mileage it is a close contender for third place. In the value of its manufactured products, the state occupies second place. In the production of sugar it ranks second, and in the production of coffee it occupies third place.

A number of favorable factors have combined to put Rio de Janeiro in this prominent place, chief among which no doubt was its proximity to and former inclusion of the capital of Brazil. This provided a ready market for many of its products, supplied labor for its manufacturing activities, stimulated the building of railroads through its territory, and made available the unexcelled advantages of the capital city as a point of export.

Rio de Janeiro stretches in a general easterly and northeasterly direction along the Atlantic, with a coast line of 450 miles, presenting various good harbors in addition to the Bay of Guanabara, on which are located both the capital of the state and the capital of the

Union. A broad, fertile stretch of littoral is admirably suited to the cultivation of sugar cane. Back of this throughout the entire length of the state rise the easternmost ridges of the coastal range, covered with forests and specially adapted to coffee culture. Back of these again lies the fertile valley of the Parahyba do Sul, rich not only in agricultural possibilities but in water power as well.

Sugar cane was for many years the chief product of the state. Then this crop was superseded by coffee, which absorbed almost all the efforts of the state. Then, when the abolition of slavery made plantation labor difficult to secure, the coffee industry declined somewhat and other forms of agricultural activity developed, so that the crops of the state are highly diversified.

The mountains of the state, which rise to as high as 7,300 feet in the Organ Range only a few miles north of the Bay of Guanabara, affect not merely the variety of products found and cultivated within the state, but offer delightful climatic conditions which attract thousands of summer visitors from the capital city and the warmer portions of the region. Petropolis, less than 40 miles by rail from the city of Rio de Janeiro, and at an altitude of 2,700 feet, was famous already in the days of the empire as the summer capital of Brazil, and other mountain resorts have come into increasing prominence since then.

The first railroad line in Brazil was built in the province of Rio de Janeiro, and construction has continued steadily since, until today there are in operation close to 2,000 miles within the state. These are for the most part lines that connect the federal capital with the states of Rio de Janeiro, Minas Geraes, and São

Paulo, though there are some purely intra-state lines. Exporting is done chiefly through the port of the federal capital, so that it is difficult to give the value of exports from the state of Rio de Janeiro alone, but the revenues of the state amounted in 1923 to more than 21,000,000 milreis, the bulk of which came from taxes on exports.

The government of the state comprises a president elected for four years by direct popular vote and ineligible for immediate reëlection, and a unicameral legislature of 45 deputies chosen for three years by direct popular vote, with provision for minority representation. The external debt of the state amounted in 1922 to over 40,000,000 milreis, with an internal debt about half as great.

Essentially a rural state, Rio de Janeiro is divided into 48 municipalities, the largest of which is the municipality of Campos, with 176,000 inhabitants. But the largest city is Nictheroy, the capital, just across the bay from Rio de Janeiro city and in some measure a suburb of the latter. Public elementary education is offered in some 500 schools, the state devoting over 10 per cent of its expenditures to elementary education. A high school and two normal schools are likewise supported by the state, in addition to numerous private institutions, and higher education is offered in faculties of law, medicine, and engineering.

In the last few years the state government has launched a vigorous program of public health promotion, working with the federal government and the Rockefeller Commission of the International Health Board, with a view to the elimination of hookworm and malaria, the chief scourges of the regions of the coastal plain.

Rio Grande do Norte

Area: 20,236 sq.m.—Population (1920): 537,135—Capital: Natal, population 30,696.

Sixteenth in area and fifteenth in population among Brazilian states, Rio Grande do Norte is just half as large as Kentucky and not quite as populous as Montana.

Rio Grande do Norte, occupying the very north-eastern tip of Brazil, with its Atlantic coast line bearing away both to the west and to the south from a point near Cape São Roque, hardly lives up to its name, for among its half dozen principal streams there is none that is worthy of being designated as "great," and the particular river after which it is named, known rather as the Rio Potengy than as the Rio Grande, at the mouth of which is located the capital and chief seaport of the state, is a minor stream navigable even for small craft only some 20 miles up from its mouth.

Its 265 miles of coast line along the northern and eastern edges of the state are dotted with numerous islands and broken by several major indentations, chief among which is the mouth of the Potengy, on which is located the capital. Back of the coast line is a broad, sandy, low plain, covered in places with marshes and lagoons and sloping gradually up to the heights in the western and southern portions of the state where the coastal range expires. The highest point in the state does not exceed 2,800 feet in altitude.

Lying between degrees 5 and 7 S. of the Equator, the coastal regions are characterized by a uniformly hot climate, though the maximum temperature does not exceed 32.6° C. or 90.7° F. at Natal. Temperatures as low as 16.1° C. or 70° F. are recorded, with the

mean annual temperature averaging 26.1° C. or 81° F. The annual rainfall at this point amounts to 48 inches, but most of it falls in the months from February to August, and the total number of days with rain is 146. On the elevated plains in the southern and western portions of the state, however, the characteristic drouth conditions are encountered, similar to those already described in connection with the discussion of the neighboring states of Ceará and Parahyba.

Rio Grande do Norte, in common with the rest of the country north and northwest of Pernambuco, was not settled until rather late in the history of Brazil and, owing to its remoteness and inhospitable climate, developed very slowly. In fact, it was not until the Dutch were in possession of Pernambuco from 1630 on that serious efforts were made to found permanent colonies in this region, though Natal was founded in 1597. The history of the state is closely bound up with that of Pernambuco, of which latter captaincy it formed an administrative division for many years. During its life as an independent captaincy, province of the empire, and state of the federal union, Rio Grande developed very slowly, for in 1900 it had only 274,317 inhabitants, manifesting the slowest rate of growth of any of the Brazilian states.

In the last twenty years, however, Rio Grande do Norte has witnessed a rapid development, almost doubling its population. The chief natural products are oil-producing palms, especially the carnauba palm, maniçoba rubber trees, and the enormous deposits of high-grade sea-salt encountered along its northern sea-coast. Of its cultivated products the most important by far is cotton, chiefly of the perennial or tree cotton variety, some of which is among the longest staple

cotton in the world. The livestock industry is considerable in spite of unfavorable conditions, more than 300,000 beef cattle being enumerated in 1920. Manufacturing is in a rudimentary stage and restricted to articles of local consumption.

The value of the state's exports was calculated in 1922 at 8,340,000 milreis, chiefly through the port of Natal, one of the best of northern Brazil, and comprised principally cotton, sugar, carnauba wax, and salt. Of navigable rivers the state has none, save for a few miles near their mouths, and of highways it is just beginning to take notice. The mileage of railways in operation in the state is something over 200, there being lines north and south out of Natal. The former is in process of extension to Macáo, while the latter already connects Natal with the capital of Parahyba to the south. With the construction of the proposed lines into the interior, the perfection of harbor facilities in Natal, and the completion of the federal irrigation works in the interior, the chief obstacles to the further rapid development of Rio Grande do Norte will have been overcome.

The state government of Rio Grande do Norte comprises a governor elected for four years by direct popular vote and ineligible for immediate reëlection, and a legislative assembly of 25 deputies elected in like manner for three years. The expenditures of the state run around 4,000,000 milreis a year, of which about 10 per cent is devoted to public elementary instruction in aid of the 37 municipalities into which the state is divided. A foreign debt of 8,750,000 francs was contracted in 1910, on which the payments have been regularly met, and the internal debt runs around 850,000 milreis.

Public elementary instruction is offered in some 135 primary schools, with somewhat less than 10,000 pupils enrolled. Secondary instruction is offered in a state high school and state normal school, besides four private secondary schools.

Rio Grande do Sul

Area: 106,289 sq.m.—Population (1920): 2,182,713—Capital: Porto Alegre, population 179,263.

Rio Grande do Sul ranks eighth among Brazilian states in area and fourth in population, being equal in geographical extent to somewhat more than New York, Pennsylvania, and New Jersey put together, and in population to somewhat less than Virginia.

Located at the other extremity of the country from Rio Grande do Norte this southernmost state is clearly differentiated in many fundamental respects not merely from that state of similar name, but from nearly all of the other states of the Brazilian Union.

In the first place the state lies wholly in the temperate zone, which is true of only one other state in Brazil, namely its immediate neighbor to the north, Santa Catharina. From about latitude 27° S. on the north it extends a distance of about 540 miles southwards to nearly 34° S. latitude.

In the second place, it is the only one of the Atlantic seaboard states lying to the west of the original line of demarcation between the possessions of Portugal and those of Spain in the New World. It was acquired by Portugal at the expense of Spain, therefore, in the course of a long history of struggles between those two nations and their successors in this part of South America, Brazil and Argentina.

In the third place, it is one of the states in which the predominance of European population is most marked, Indians, negroes, and half-breeds being very markedly in the minority. This is due chiefly, of course, to the fact that immigration into that state has been heavy from European countries, at first principally Germans, but in the latter part of the nineteenth century chiefly Italians, though the inhabitants of German extraction form a very considerable portion of the population today.

Fourthly, Rio Grande do Sul, in spite of enormous agricultural and industrial expansion, is the foremost cattle state of Brazil, having in 1920 nearly 8,500,000 head of beef cattle, besides 1,621,638 horses and mules, 4,485,546 sheep, and 3,367,098 swine.

Fifthly, the state ranks third in extent of railway mileage and comprises two of the ten principal ports of the country. And finally, occupying fourth place in population already and being among the states showing the most pronounced rate of increase, it is destined to occupy an increasingly important place in the matter of population.

Other characteristics of the state will be brought out in the further description of its activities, but enough has been said to show that here we are dealing with one of the most important of the Brazilian states from every point of view except that of mere geographical extent, and that even in this particular Rio Grande do Sul is almost double the size of any American state east of the Mississippi.

Bounded on the south by Uruguay and on the west by Argentina, Rio Grande do Sul is in the shape of a rough quadrilateral with some 500 miles of Atlantic coast line forming one side. Just as the coastal high-

lands and great Brazilian plateau fade away to nothing in Rio Grande do Norte at the north, so they find their southern extremity here in Rio Grande do Sul. The bulk of the state consists of rolling prairies, falling away to the south and west in the basin of the Uruguay River, and bounded on the Atlantic side by wide expanses of low coastal plain.

The climate of the state, somewhat less influenced by altitude than is true in most of the states of Brazil, since only the northeastern corner of the state boasts of elevations reaching 3,000 feet above sea level, is nevertheless sufficiently varied, its general characteristics being those of a maritime temperate climate. In the capital, Porto Alegre, at the upper end of the great inland lake, Lagoa dos Patos, but virtually at sea level, the extremes of temperature recorded in a ten-year period were, respectively, 29.3° F. and 103.1° F. The maximum, it will be noted, is higher than the highest temperatures recorded in the equatorial regions of Brazil, but on the other hand freezing temperatures are regularly encountered in the season from May to September, and the mean annual temperature is 66.4° F. The annual rainfall of 51 inches is much more evenly distributed throughout the year than is the case in the tropical regions, and the relative humidity is lower as well as the rainfall.

A short distance from Porto Alegre, but on the elevated plateau at Caxias some 2,500 feet above sea level, the maximum is somewhat less, the winter temperature drops to 20° F. on occasion, and the mean annual temperature is 60.6° F. At the same time both the rainfall and the relative humidity are greater than on the coastal plain. These data are fairly characteristic of the entire plateau region in the northeastern

part of the state. Still other conditions are encountered in the valley of the Uruguay in the western portion of the state, where the elevation is low and some of the hottest temperatures recorded in Brazil are encountered. At Uruguayana, for instance, 107.6° F. has been registered, while freezing was recorded in the month of August only.

The soil and climatic characteristics of the state have naturally created a special type both of natural products and of cultivated products. Most of the state partakes of the characteristic features of the Argentine pampas to the west and the rolling plains of Uruguay to the south, there being immense stretches of ideal natural pasturage. At the same time the forest areas of the state are considerable and contain valuable woods for construction.

The livestock industry is perhaps the characteristic activity of the state, the term "gaucho" or cowboy being as closely associated with Rio Grande do Sul as it is with Texas in the United States. But the agricultural production, amounting in 1921 to more than 4,000,000 metric tons, valued at 736,572,500 milreis, is even more important as a source of wealth, there being more farms under cultivation in Rio Grande do Sul than in any other Brazilian state. In the production of wheat, grapes, and rice it leads all other states, and of Indian corn alone more than 1,699,500 tons were produced in 1921.

Moreover, manufacturing, which in most other states of Brazil is either almost wholly lacking or represented by small local plants, is well developed in Rio Grande do Sul. Some 13,000 factories producing goods valued at 474,600,000 milreis were in operation in 1921, most important among which are the meat packing plants,

though many other forms of manufactured articles are produced as well.

The exports of Rio Grande do Sul were valued in 1922 at 104,528,000 milreis, the products of the live-stock and packing industries constituting the principal items of export, viz., lard; chilled, frozen, and preserved meats; hides, and wool. There are three principal ports on the great inland Lagoa dos Patos, connected by a narrow and somewhat uncertain passage to the sea, not suitable for passage by ocean steamers of the deepest draft. Goods are also shipped directly to Argentina and Uruguay to the west and south, but the bulk of the exports are by ocean transit.

In the matter of railways Rio Grande do Sul has been making rapid progress, there being over 1,700 miles in operation, with new lines under construction. From north to south the state is bisected by the line which runs clear from São Paulo to the Argentine and Uruguayan borders. From east to west the state is likewise crossed by a main line with two arms running to the main harbors on the Lagoa dos Patos, Porto Alegre and Rio Grande.

The state government of Rio Grande do Sul comprises a president chosen by popular vote for a term of five years and a unicameral legislative assembly of 48 members elected for four years in like fashion. The constitution of this state, unlike that of all but one of the other states in Brazil, permits immediate reëlection of the president, provided he receive a three-fourths majority. As a result of this provision a single individual has served as president of the state since 1898 with but one interruption. Reëlected again in 1923 he was faced with armed resistance which finally resulted in an agreement to prohibit immediate

reelection of the president of the state under any circumstances.

The expenditures of the state government are close to 50,000,000 milreis a year, many public improvements having been inaugurated in the last few years, and elementary public education is generously supported by the state. Over 2,500 public elementary schools care for nearly 130,000 pupils, a number that is scarcely exceeded by any state in the Union except São Paulo. The foreign debt of the state includes \$10,000,000 contracted for with American bankers in 1921, and the state is responsible as guarantor for a number of loans contracted by various cities of the state for public improvements.

For purposes of internal administration and local government the state is divided into 72 municipalities, the most important of which by far is the capital, Porto Alegre, sixth city of Brazil. A comprehensive system of highways is being inaugurated, the state already ranking among the first of Brazil in that respect, which makes up for the relative lack of internal waterways.

Santa Catharina

Area: 36,680 sq.m.—Population (1920): 668,743—Capital: Florianopolis, population 41,338.

Santa Catharina occupies fourteenth place in area among Brazilian states and thirteenth place in population. In geographical extent it is a little larger than Indiana, while in population it is a little larger than North Dakota.

Lying immediately to the north of Rio Grande do Sul it has various features in common with that state,



The State President's Palace—Belo Horizonte, Minas Geraes.

though in some respects it presents marked peculiarities of its own. Like its southern neighbor, Santa Catharina lies wholly within the temperate zone, and also extends from the Atlantic west to the international boundary with Argentina. But unlike Rio Grande do Sul, this state has but a very narrow coastal plain, the Serra do Mar or maritime range extending in places to the very water's edge. Much the greater part of the state is elevated table-land with mountain ranges along the eastern strip which rise in points to 5,000 feet.

The coast line of Santa Catharina, some 288 miles in length, is extremely broken and in places rugged, being dotted with islands, the most important of which is the island of Santa Catharina, scene of various conflicts between Portuguese and Spaniards. On this island is located the capital, Florianopolis, formerly called Desterro, facing toward the mainland, from which it is separated by a strait about half a mile wide, constituting one of the main anchorages in the state.

It was at Laguna in the southern part of the sea-coast of this state that the territory falling to Portugal under the original division began, and here the captaincy of Santo Amaro was set aside in 1534. But actual settlement did not occur until more than a century later, and almost another century elapsed before this district, which had become part of São Paulo, was set up as a separate captaincy. Becoming a province of the empire upon the attainment of Brazilian independence, Santa Catharina did not really begin to develop until foreign immigration was encouraged, bringing in thousands of Portuguese, Italians, and Germans. Its greatest development has come in the twen-

tieth century, for in the first two decades thereof the state more than doubled in population.

Among the natural resources of the state, forest products take first rank, including the finest quality of pine and the maté plant. Mineral resources are also considerable, though but little developed, with the exception of the bituminous coal mines, which have been exploited to an increasing extent in recent years.

Agriculture is well developed in the state, wheat being grown to a considerable and increasing extent, while at the same time coffee, tobacco, and rice are raised in important quantities. Along the narrow coastal strip subtropical climatic conditions prevail, but on the elevated plateau region, which constitutes the major part of the state, temperate climate prevails, with freezing temperatures encountered in many places during the winter months. It is, therefore, a region presenting special attractions to European immigrants, and the population of German extraction constitutes the most important ethnic group, though there has been little German immigration in many years.

Conditions are favorable to the livestock industry, which was represented in 1920 by over 600,000 head of beef cattle, and an equal number of swine. Manufacturing is concerned chiefly with the preparation of the maté leaves, the weaving of textiles and the preparation of dairy products, though there are numerous small establishments for the manufacturing of other goods.

The exports of the state were valued in 1922 at over 17,000,000 milreis, chief among the exports figuring maté, lumber, livestock, and dairy products. The rivers of the state, though many, are of little commercial importance, but considerable progress has been

made by some of the colonies in road building, and there are some 670 miles of railroad in operation. Part of this mileage is the portion of the São Paulo-Rio Grande, which traverses the middle of the state from north to south, and part is the line that runs from this trunk road down to the Bay of São Francisco at the extreme northern end of the coast line.

The government of the state comprises a governor elected for four years by direct popular vote and ineligible for immediate reëlection, and a unicameral legislature of 40 members elected for three years. The state budget has shown expenditures in recent years of about 8,000,000 milreis, nearly a fifth of which is devoted to elementary public education, Santa Catharina being one of the most advanced of Brazilian states in this regard, the percentage of children of school age enrolled in schools being the largest here. Some 550 public elementary schools showed an enrollment of 42,000 pupils. Many of the colonies, particularly those of German population, have provided first class school facilities on their own initiative. The foreign debt of the state amounts to two balances of 98,497 and 67,541 pounds sterling contracted in 1909 and 1911, respectively, payments on which have been promptly met, and a loan of \$5,000,000 floated in New York in 1919, but concerning which there has been litigation. In general, the finances of the state have been on a very satisfactory basis.

Of the 34 municipalities into which the state is divided for purposes of local government and internal administration, the largest is Blumenau, a German colony in the northeastern part of the state, where most of the population is concentrated. This is one of the rare cases in Brazil where the political capital

of the state is not also the largest municipality, Florianopolis having only a little over half as many inhabitants in the district. The extreme western portion of the state, comprising territory that was long in dispute with Argentina, is as yet but little developed and quite without railway communications with the more settled eastern portion.

São Paulo

Area: 95,459 sq.m.—Population (1920): 4,592,188—Capital: São Paulo, population 579,033.

Though only ninth in area among Brazilian states, São Paulo ranks second in population and is half again as populous as its nearest rival, Bahia. In extent it just about equals Oregon, and in population, Texas.

Though São Paulo is far from being the most extensive state in Brazil, and in the matter of population, though in second place, is nearly 1,300,000 behind Minas Geraes, in nearly every other respect it occupies an undisputed and enviable first place. It leads in agricultural products, it is first in the value of exports, it has the largest number of factories, and has led all other states in the number of immigrants received from foreign countries. It contains the earliest permanent settlement founded in Brazil and, through the efforts of its bandeirantes, opened up and permanently added to the country more than half of its present area. Its inhabitants took a leading part in the movement for Brazilian independence, which was declared on Paulista soil, and its sons led in the movement which resulted in the establishment of the federal republic in 1889. Since that time, Paulistas

have played a leading rôle in the national politics of the country, and three of her sons have served as presidents of the nation. In road building she is first, in public education she is first, in public sanitation she is first, to say nothing of containing much the largest and most modern city of Brazil, with the single exception of the national capital.

Small wonder then that Paulistas are prone to regard São Paulo not only as of first importance in Brazil, but even so far ahead as to be more important than all the rest of Brazil put together. Making all due allowance for the exaggerations of an intense state pride, there is still plenty of basis for regarding São Paulo not only as a remarkable state among Brazilian states, but well worthy of study in and for itself on an absolute rather than relative basis.

São Paulo is much reduced from the dimensions she boasted in the early eighteenth century, when all of southern Brazil and all of western Brazil was under her jurisdiction. Matto Grosso, Goyaz, Minas Geraes, Paraná, Santa Catharina, and even parts of Rio Grande do Sul were either settled by Paulistas or wrung from Spain with Paulistas' help. The last piece of territory to be taken from her was Paraná, which was erected into a separate province in 1853. But her present dimensions are still considerable, for New York State could almost be doubled in area and still fall within the limits of São Paulo.

Geographically, São Paulo is a tropical state, for only a small triangle in the extreme southeastern portion lies below the Tropic of Capricorn. But practically the whole of the state lies on the great Brazilian plateau, the eastern ranges of which press down almost to the Atlantic along most of the seacoast. This pla-

teau, which slopes away from the eastern ridges to the basin of the upper Paraná in the west, shows mean elevations from 2,000 to 3,000 feet and modifies the climate to such an extent that it partakes for the most part of temperate rather than tropical conditions. At the capital of the state, 50 miles by rail from the sea and back of the easternmost ridges of the coastal range, the climate is typical of much of the eastern half of the table-land. This city is right on the Tropic of Capricorn and lies at an elevation of 2,500 feet above the sea.

Here in a period of fifteen years' continuous observation the maximum temperature recorded was 34.4° C. or 94° F. The minimum, however, was -2° C. or 28.4° F., and from June to October minimum temperatures either below or very close to freezing were recorded in each month. The mean annual temperature during the period under observation was 63.7° F. The rainfall averaged more than 56 inches a year, and here the tropical influence made itself apparent in that the winter months from April to August showed in all only 40 days on which rain fell, out of a total of 146 such days.

Along the 300 miles and more of coast line there is a strip of land, very narrow in the northern portion but widening out to some 80 miles in extent at the widest southern portion, which is at sea level and presents characteristic subtropical conditions, as almost the whole of the coast is south of the Tropic of Capricorn. At Santos, the great port of São Paulo and the greatest export center of Brazil, the maximum temperature recorded is 107° F., and no freezing temperatures are ever experienced, the lowest recorded in a period of more than twenty years being 41° F. The

rainfall is excessive, the annual precipitation being more than 82 inches. These conditions along the coastal belt, combined with rich alluvial soils, make the southern coastal plain of São Paulo exceptionally productive.

Back in the river valleys, which cut across the state from the Serra do Mar in the east to the Paraná in the west, conditions more nearly approaching those of northern Brazil are likewise encountered, but so far as the settled and developed portion of the state is concerned, and that means chiefly the great coffee regions, the climate is very similar to that of mediterranean Europe.

The natural products of São Paulo are great in variety, great in extent, and great in value. Forest products, fruits, minerals, and water power are among the chief natural resources. But agricultural products have become much the most important, and leading them all to such an extent as almost to eclipse all the rest put together, is coffee. Half of all the coffee raised in the world is grown on the fazendas of São Paulo. But the emphasis placed in the popular mind on this one product is likely to obscure the fact that in sugar, cotton, and tobacco, to say nothing of cereals, rice, and beans, São Paulo takes a high rank among Brazilian states.

The manufacturing industries are represented by hundreds of factories of all kinds employing thousands of hands and producing manufactured goods, the value of which equals the enormous sums represented by her agricultural products. Of textile mills alone there are some 60, with 30,000 hands, and the products supply not only the state itself, but are exported in considerable quantities to other parts of Brazil. The rivers

of the state, though of little use for navigation, because broken at frequent intervals by rapids and falls, are of inestimable value for the potential generation of hydro-electric power, some of them having already been harnessed for this purpose. Among the more recent and important manufacturing plants established in the state are the great meat-packing establishments erected by American and Brazilian concerns.

In transportation facilities the state is very well served by almost 4,500 miles of railroads extending in a great network over the coffee-growing regions. There is, however, only one road that leads from the interior plateau to the point of export, Santos, and that is taxed beyond capacity during the peak load periods. The railways are now being supplemented by an extensive system of highways, the movement for which has but recently been inaugurated.

The value of the exports of São Paulo in 1922 amounted to the astonishing sum of 1,144,638,000 mil-reis, which at the rate of exchange then prevalent represented nearly \$150,000,000. In the order of their importance, coffee came first, representing much more than all other exports combined, then cotton, rice, beans, and frozen meats.

The state government comprises a president elected by popular vote for four years and ineligible for immediate reëlection, and a bicameral congress of 60 deputies and 30 senators, the former elected for three years, and the latter for nine, renewed by thirds triennially. The position of president of the state of São Paulo is one of great power and dignity, and three of the eight elective presidents of Brazil have gone from the presidency of São Paulo state to that of the nation. In national politics, he is, therefore, an im-

portant figure, and São Paulo, with her sister state of Minas Geraes, largely directs developments in that field.

The state budget recorded expenditures in 1922 of 177,976,663 milreis, much the largest of any state in Brazil. The export tax, which formerly supplied the great bulk of the state revenues, has been gradually superseded in importance by other sources of taxation, though it still plays an important part. The outstanding foreign debt of the state in 1922 amounted to 7,673,280 pounds sterling, 9,961,000 U. S. dollars, and 18,000,000 florins, the equivalent in all of some 200,000,000 milreis. The internal funded debt amounted at the same time to 292,639,500 milreis, with a floating debt of over 100,000,000 milreis more.

The state is divided into 204 municipalities, the most important of which by far is that of the capital city, São Paulo, with a population close to 600,000 people. It is the second city in Brazil, and rivals in business and up-to-dateness the national capital itself. There are other important cities in the state, notably Santos, the great export port. Of the smaller places, a number show progressive conditions not met with in most cities of like size in the rest of Brazil. São Paulo prides itself especially on its system of public education, which has been making enormous strides in recent years especially. Its public elementary schools number close to 2,500, with 1,000 private elementary schools besides. The state supports a number of secondary schools in addition, and faculties of law, medicine, pharmacy, and dentistry, besides agricultural and arts and crafts schools. In the proportion of the public expenditures devoted to education, São Paulo easily takes first rank.

Sergipe

Area: 8,321 sq.m.—Population (1920): 477,064—Capital: Aracajú,
population 37,440.

Sergipe is the smallest of all the Brazilian states in area, and in population it ranks eighteenth. Its geographical extent is almost exactly equal to that of New Jersey, and its population is somewhat greater than that of Utah.

Small as it is, Sergipe has had an eventful and interesting history. It began as a part of the great captaincy of Bahia, but its Indian inhabitants were a warlike lot who resisted soldiers and missionaries alike until nearly the close of the sixteenth century, preventing all attempts at permanent settlement. Then it was created as a separate captaincy, but was later incorporated again into Bahia. Finally in 1820 it became separate once more and has remained so to this date, first as a province and then as a state of the federal union.

Occupying a narrow triangle across the São Francisco River from Alagoas, its physical characteristics are very similar to those of the latter state. Its Atlantic coast line is but a trifle over a hundred miles in extent and contains but one major indentation, on which is located the capital and seaport of the state. Back of this seacoast, which for the most part is low and sandy and bordered by a strip of similar terrain, the surface rises gradually in fertile, well-watered, rolling plains to the plateaus and ranges of the western portion of the state, the highest point reached within the state being 2,800 feet above sea level.

These three regions, coastal lowlands, central plains, and western heights represent rather distinct conditions of soil, climate, and products. The natural prod-

ucts of the state include chiefly forest products, though minerals exist in considerable variety and workable quantities.

Agriculture is the principal activity of the state, cotton and tobacco being cultivated in the central portion, while sugar and rice are the principal products of the lowlands. On the interior plateaus of the sertão, cattle raising is the chief activity, there being over 300,000 head of beef cattle enumerated in the census of 1920, besides 256,000 sheep and goats. Manufacturing is but slightly developed, textile mills, sugar mills, and salt works being the principal undertakings.

The exports of the state were valued in 1920 at 19,418,536 milreis, but the seaport will not admit ocean-going steamers of large draft. The chief articles of export were sugar, cotton and cotton textiles, rice, salt, and hides.

Of internal communications there are few that are developed. Modern highways are practically nonexistent, the rivers are of no value for transportation, except the São Francisco on the boundary with Alagoas, which connects no regions of importance within the state, and railroads are represented by a single line running across the state in its eastern part from north to south and connecting the capital of Sergipe with the capital of Bahia to the south and with Alagoas to the north. To the interior there are as yet no transportation facilities beyond those of poor trails and mule back.

The state of Sergipe has a president elected for four years by popular vote and ineligible for immediate reelection and a unicameral assembly of 24 deputies, likewise popularly elected for a period of three years. For internal administration the state is divided into

35 municipalities, the most important, as is usually the case in Brazil, being the state capital, though Aracajú did not become a capital until 1855, the ancient capital, São Christovão, founded in 1590, being only 20 miles up the river from the present capital.

The budget of the state provides for expenditures of over 7,000,000 milreis a year, more than 10 per cent of which go to elementary and secondary public instruction. The former is carried on in some 266 public schools with more than 10,000 pupils enrolled, and the latter is served by a high school and a normal school supported by the state. The state of Sergipe contracted a loan of \$1,000,000 recently in the United States, and its internal debt amounts to nearly 5,000,000 milreis, all obligations which are being regularly met. Contrary to the usual financial situation in Brazilian states, revenues are derived chiefly from internal taxes rather than from taxes on exports.

The Federal District of Rio de Janeiro

Area: 451 sq.m.—Population (1920): 1,157,873.

In many respects, of course, the federal district of Rio de Janeiro is a wholly different sort of geographical and political unit from the states of Brazil which have so far been considered. But its importance in other respects is so great as to overshadow many of the geographically larger units.

Comparing it with the District of Columbia, its nearest counterpart in the United States, we see that it is more than six times as great in area and two and a half times as great in population, while as an industrial center, and above all as a seaport, Rio de Janeiro is incomparably more important than our national cap-

ital. In fact, among Brazilian states, thirteen rank below the federal district in population, only one exceeds it in the development of manufactures, and none equals it in the value of imports that enter through it.

Moreover, the federal district, unlike the District of Columbia, is on a par with the states of the Brazilian Union in being represented by an equal number of senators and a proportionate number of deputies in the national congress, besides casting its proportionate share of the popular vote for president and vice-president. As political, intellectual, social, and commercial center of the whole country, Rio de Janeiro occupies a position that combines the salient features of New York and Washington in the United States. Should the federal capital ever be moved to the district laid out in the interior of Goyaz, as provided in the constitution, the present federal district would take its full standing along with the other states, as the smallest no doubt in area, but by no means the least important of those units.

Only a small portion of the area of the federal district is occupied by the city proper, the *zona urbana* as it is called. This covers the water fronts on the Atlantic Ocean and on Guanabara Bay, crowded almost into the sea by the heights which rise to over 3,300 feet almost within a stone's throw of the water's edge. Small as the extent of the district is, the variations in altitude afford within the city limits remarkable differences in climatic conditions.

Tempered by the sea breezes, Rio de Janeiro offers one of the most delightful climates of the world. At the national observatory in the city on a hill some 260 feet high, continuous observations for a period of nearly thirty years furnished the following data. The

highest temperature ever recorded was 34° C. or 93.2° F. The lowest temperature recorded was 54.5° F. and the mean annual temperature was 73.6° F. The relative humidity was low, 78.3 per cent, and the annual rainfall averaged 44 inches, the months from November to March recording the heaviest rainfall. The average number of days on which rain fell was 143 each year.

Combined with this mild and equable climate, the capital city has been subjected to modern and stringent health regulations which have converted it in recent years into one of the most healthful cities of any considerable size in the world, whether judged by the statistics as to death rates or as to prevalence of disease. The incomparable beauties of the location have been expertly enhanced by extensive public improvements, such as parks and boulevards, the opening up of the broad Avenida Rio Branco in 1904 through the business heart of the city, and the leveling of the Morro do Castello, begun in 1922, ranking among the great achievements in city improvements of modern times.

Outside of the city proper, among the assets of which might be enumerated in addition well developed public utilities of every description, including most modern and extensive harbor works, there are considerable areas under cultivation for agricultural purposes, chiefly truck gardening. The city is well served with suburban railroad service, and from it the Central of Brazil scales the Serra do Mar to the interior of the State of Rio de Janeiro, to Minas Geraes, and to São Paulo, and to the northeast runs the Leopoldina clear to Victoria in Espirito Santo.

The exports from the port of Rio de Janeiro, which

is the outlet for the states of Rio de Janeiro, Minas Geraes, and part of São Paulo, were valued in 1922 at approximately 427,000,000 milreis, and imports in the same year at 775,336,500 milreis.

The government of the federal district is vested in a popularly elected council of 24 *intendentes*, elected by popular vote for a three-year term, and a prefect, appointed and removable by the president of the republic. A number of the important governmental functions within the district are performed by the national government, but aside from these the municipality expends some 115,000,000 milreis a year from local revenues. Most of this expenditure is required for the interest and amortization of the debt, which amounted at the end of 1922 to 260,594,328 milreis of foreign debt, and an internal debt of 229,733,600 milreis, besides a floating debt of more than 100,000,000 milreis. Elementary public education is offered in more than 400 schools, with secondary and higher instruction well cared for by national institutions.

The National Territory of Acre

Area: 57,153 sq.m.—Population (1920): 92,379—Capital: Rio Branco, population 5,000.

As the only federal territory, Acre deserves some mention in this survey of the political units of Brazil, though its importance from other points of view is potential rather than actual. Its area is about equal to that of the state of Illinois, and its population, small as it is, nevertheless exceeds that of Nevada. In comparison with the states of Brazil, this territory is almost the same size as Ceará, but in population it lags far behind Matto Grosso, the least populous of

the twenty states. The density is about 1.6 persons per square mile.

The Acre territory, so named after the river lying therein, which appears to be derived from an Indian word meaning "Green River," is a recent acquisition, being ceded to Brazil by Bolivia in 1903 by the terms of the Treaty of Petropolis. This treaty was the culmination of a long dispute between Brazilian settlers of that region and the government of Bolivia, not unlike the difficulties between the American settlers in Texas and the Mexican government in the third and fourth decades of the nineteenth century, leading there, as here, to a declaration of independence and ultimate incorporation into the country from which the alien settlers came.

The Acre territory occupies the westernmost tip of Brazil, lying between the upper Amazon basin and the highlands of Peru and Bolivia. It is probably the most inaccessible spot in South America, and for that reason as late as 1860 no white man had ever set foot within the present limits of that region. Its chief economic significance, and the one that prompted its exploration and settlement, is derived from the existence of immense forests of rubber trees, an asset which greatly diminished in value, however, when the rubber crisis occurred something over ten years ago.

The district is rich in other forest products besides rubber, however, and as far as soil and climate are concerned is admirably suited to agriculture. There are also great plains suitable for cattle raising, though so far that industry has been but little developed. The rivers of the district drain into the tributaries of the upper Amazon basin and provide water ways clear to the sea, but only for light draft vessels

and canoes, owing to many rapids and falls. Of other means of communication there are none except the rudest forest trails.

The territory is administered by a locally elected legislature and a prefect appointed and removed by the national president. The resources of the territory are so small that it has to be aided materially by the national government, and the governmental activities are of the most rudimentary character. Nevertheless, the potential resources of the district are such that with the influx of population, which improvements in sanitation and in transportation facilities would encourage, it may yet become an important area in Brazil, and ultimately take its place among the states of the federation.

CHAPTER XV

SOCIAL CONDITIONS

IN the preceding chapters an effort has been made to present a picture of Brazil by considering separately such fundamental phases of a country's existence as its physiography, history, government, natural resources, population, industries, transportation, and commerce, with somewhat more detailed reference to the political units that make up the whole. This method of treatment makes for completeness and orderliness, and furnishes the basis at least for arriving at some general conception of the country and its people, and their place as one of the great nations of the world. But it has the inevitable disadvantage that the mass of apparently unrelated details may make it confusing to visualize an impression of the whole. There is a real danger, in other words, that one may be unable to see the forest because of the trees. There is a feeling on the part of the writer certainly, and more than probably on the part of the reader also, that clarity demands a certain summing up or generalization of the characteristics of the nation as a whole, distinct from the consideration of the individual phases already separately taken up.

And yet, natural as is this desire for a projection that shall show the blending of all these factors, and tempting as is the effort to make generalizations, in it lurk the greatest dangers and difficulties confronting the observer and portrayer of such a subject. Per-

spective in such matters is an infinitely difficult object to attain, and, when attained, is bound to be largely personal and subjective. A foreigner, particularly, labors under almost insurmountable handicaps, even if by years of residence and accuracy of observation, combined with facility and clarity of presentation, he is fortunate enough to reduce these handicaps to a certain extent. For one not so specially favored it is little short of presumptuous to yield to this temptation to pose as a qualified painter, and, leaving the solid if somewhat unsatisfying realm of facts and figures, embark on the hazardous undertaking of portraying in bold strokes the lights and shadows as they may strike his particular eye.

As an interpreter of a nation, the foreigner, if he be a person of ordinary discernment and breadth of view and reasonably aware of his own limitations, possesses but one advantage over the native. His prejudices are of a different character at least from those of the native citizen, and he should be able to avoid more easily the extremes both of praise and censure which the traditions and environment of the latter almost inevitably lead him into when discussing the outstanding features of his nation.

In this spirit of moderation, then, it may not be amiss to devote a few pages of this effort, not indeed to broad generalizations so much as to certain less tangible aspects of the Brazilian nation which are of fundamental importance in coloring the whole, but which have not fitted in exactly to any one of the major subjects previously selected for special consideration. Even in these matters it will be well so far as possible to rely on matters of record, though the records are much less complete and available than was true in the

majority of subjects so far discussed. For want of a better term, these less tangible aspects may be grouped under the head of social conditions, a term broad enough to comprise almost anything the author may wish to touch upon, and yet indefinite enough to justify the omission of any phase which may seem less important or too difficult of ascertainment.

Education

First of all then we may take up the fundamental matter of education. Here we may start with the undisputed fact, deplored in no uncertain terms by leaders of Brazilian thought themselves, that the great mass of the Brazilian population is not merely without common school training but is actually unable to read and write. Accurate statistics are not available, but authoritative estimates for the country as a whole vary in giving from 60 per cent to 80 per cent of the entire population as being illiterate.

It is scarcely necessary to do more than make this bald statement to conjure up the many consequences of a social, economic, and political nature that flow from this condition. The seriousness of the situation was understood and deplored in the closing years of the empire, but little progress was made in the direction of remedying it. With the establishment of the federal republic, attention was directed more and more effectively to the problem of public education, but a number of factors have combined to prevent a rapid realization of the ideal of a comprehensive system of public education. Chief among these factors was the period of adjustment after the political upheaval in question, which left little energy and less

money available for this purpose. Another retarding influence was the fact that primary education was assigned under the constitution to the states in the federal union, the majority of which, emerging from a long period of political and financial stagnation, were in no position to tackle so difficult and expensive a problem. Still a third factor was the essentially rural character of the population and the enormous area over which it was scattered, making the provision of even primary education an extremely difficult matter. These conditions persist to the present day.

At the very bottom, therefore, education has until now been largely the privilege of the fortunate few who had means to send their children to private schools or to employ tutors in their own homes. What was true of elementary education was, of course, even more true of secondary education, and one of the striking facts brought out in the summary description of the individual states was the number of instances in which a single high school and perhaps a normal school or two were the sole public institutions of secondary instruction in the entire state. In this branch of education even today the number of private institutions far exceeds the number of public institutions, though many of the private institutions are accorded official standing, receive some public financial aid, and are subjected to some regulation by the state governments.

Of universities in the American sense of the term there are none in Brazil even today, though within the last few years a union of several independent faculties maintained by the federal government in Rio de Janeiro has created the University of Rio de Janeiro. The whole system of education in Brazil, as it has

developed so far, has been influenced by the French model, and the divisions of the curriculum into elementary, secondary, and higher instruction have also been on that model.

It is not so much the curriculum of subjects taught or the relation of the professors to the universities and the students, different as these are from the system in the United States, that characterize the Brazilian higher education. It is rather in the fact that higher education is the privilege of the very few. The fortunate possessor of a doctor's degree is set off from his non-university fellow citizens not simply by the evidence of a higher degree of training, but even more by the fact that he comes from the social class which can provide such training for its sons. The aristocracy of wealth and the aristocracy of learning are, therefore, very largely identical, and when combined with the aristocracy of family, a real factor in Brazilian social life, place the individual possessed thereof in a very enviable position indeed.

Here we see one of the great contrasts of Brazilian life. On the one hand the overwhelming number of persons without any education whatsoever, and on the other the surprisingly numerous group of persons with a very high degree of education indeed. Not content with exhausting the very considerable resources of their own country in professional education, especially in law and medicine, many sons of the best Brazilian families supplement their training in the foremost universities of Europe. Among this class of Brazilians will be found many individuals who not merely are admirably trained in technical equipment for their professions, but who, by virtue of a broad knowledge of the humanities, of travel, of foreign languages, and

even of the fine arts, are as completely educated men as can be encountered in the world anywhere.

Law, medicine, journalism and letters, and politics are the professions that attract the able and energetic of the nation's favored sons, and many who seek and obtain degrees in the first two have no intention and in many cases no need of pursuing them for a livelihood. They are in the fortunate position of pursuing only an avocation, and that is the reason why the political and administrative posts of the country, as well as the staffs of the many newspapers, can show so many instances of men possessed of the highest qualifications for a professional career.

But the surprisingly large number of really highly educated men has not blinded the Brazilians to the top-heavy character of their educational system, and one of the chief concerns of the leaders in public thought today is to decrease illiteracy, spread the opportunities for elementary education to all, and provide vocational education for the great majority who could not, or would not if they could, prepare for the higher professions. Each year witnesses marked improvements in these respects by the combined efforts of municipal, state, and national governments, and the question now is merely one of securing the necessary financial means, not of awakening a realization of the importance of popular education.

In appreciation of the fine arts, literature, painting, sculpture, and music, the Brazilians are the fortunate heirs of their Latin forebears. During the three centuries of colonial history, an oppressive home government and a narrow church effectually prevented the development of any of these arts as Brazilian manifestations. But the coming of the Court of Portugal

to Brazil marked not only the beginning of a liberal era in matters of industry and commerce, but also in the encouragement of the arts and sciences. Under the stimulus of a scholarly and refined monarch such as was Dom Pedro II, these fine arts were encouraged and the list of really notable Brazilian writers, artists, and musicians is too long even for mere enumeration. For a considerable period, as was inevitable, the Portuguese influence was dominant in literature, the French in art, and the Italian in music, but there has now begun to develop a distinct Brazilian type in all three. The truly national note is clearly discernible in every field of the fine arts, and the peculiar history, racial composition, and characteristic manifestations of nature are more and more supplying the plots for stories, the inspirations for poems, the motifs for music, and the subjects for painting and sculpture, that distinguish the productions as essentially Brazilian.

Social Classes

Politically, Brazil became a democracy in 1889. That is to say, monarchy was abolished, hereditary privileges and titles were discontinued, and property qualifications for voting and office holding done away with. The only important limitation on the right of suffrage was the literacy requirement for voting, and that limitation would meet with the approval of all but the most extreme advocates of the idea that men are not only absolutely equal when born, but continue to be so throughout life, without regard to education, intelligence, or moral attributes.

A revolution, as has frequently been illustrated in history, may indeed transform a political monarchy

or aristocracy overnight into a political democracy. But it is a much rarer occurrence to see such a revolution transform an aristocratic or oligarchical society overnight into a social democracy. That such a transformation occurred in Brazil in the night between November 14 and November 15, 1889, no one would venture to assert. It is true that some of the representatives of the most prominent families in Brazil, staunch supporters of Dom Pedro II and unable to reconcile themselves to the manner of his overthrow, went into enforced or voluntary exile at the time of his departure. But many more, either because of republican convictions or because they saw the hand-writing on the wall, had already prior to the revolution of 1889 taken their stand on the side of republicanism, and in more than one instance men and families who had been prominent politically under the empire, became and remained prominent politically under the new régime.

Many more who had taken no active part in politics but were recognized among the social aristocracy of the country, continued in that rôle after the inauguration of the republican régime, and their descendants are in that position today. Conditions in colonial days and from the attainment of independence to the overthrow of the empire favored the development of a social aristocracy, and some of them continue, though in much diminished extent, even today. Great landed possessions, the institution of slavery, and the holding of important government positions, all combined to create a sort of feudal society, which transmitted social and political prominence even without the artificial aids of hereditary titles of nobility, which were so freely conferred during the period of the empire.

Slavery was abolished in 1888, it is true, many great

estates were broken up and passed into the hands of newcomers, and such titles as were still in current use were designations of courtesy purely. But the families which had enjoyed these earlier prerogatives retained not merely their pride of ancestry but also a considerable measure of social deference from the rest of the population. Many of their holdings remained in their hands and with the economic development of the country proved a greater source of wealth than ever before. It is this class in Brazil which still occupies undisputed supremacy in a social way and which actually wields a very great influence in a political way.

This social system is gradually though clearly breaking down. Industry and commerce are creating a new aristocracy of wealth to displace the old aristocracy of land tenure and lineage. Business and industry do not attract the scions of the old families in Brazil as a rule. In fact, they have been largely monopolized by foreigners. But the children of these foreigners are Brazilians by birth, and for the most part are enthusiastic Brazilians in national pride and patriotism. They are not only making industry and business a national Brazilian undertaking, but they are beginning to contribute an important element to the professions, to journalism, and to politics.

So the old order is visibly changing, and the aristocracy of wealth and education is being recruited more and more from the elements which can claim no particular pride of blue blood in their veins. The ranks are opening up to anyone whose energy and ability enable him to climb to the top. Not even racial barriers stand in his way, for the accident of some Indian or negro ancestry is accounted no bar to political or

social preferment. That this transformation is not viewed by all Brazilians as an undiluted blessing is obvious, but blessing or curse, it seems unquestionably to be under way, with all the consequences that may flow therefrom.

Religion

From the earliest settlement of Brazil the religion of the country has been the Roman Catholic religion. For centuries none other was tolerated, and all during the empire in the nineteenth century the Roman Catholic Apostolic Church was the national church, though freedom of worship was guaranteed to all other forms. One of the demands of the forces back of the overthrow of the empire was for the separation of church and state, and this reform was carried through with great thoroughness by the provisional government of the republic.

But the separation of church and state has not diminished the hold of the Roman Catholic church on the population as a whole. Considerable proselyting has been done by various Protestant sects, but, aside from arousing some very readily understandable irritation, it has not made any appreciable impression on the overwhelmingly Roman Catholic character of the country. To the simpler uneducated rural population the symbolism of the church and particularly its colorful festivals continue to make the old-time strong appeal. Even among the educated classes and those of social and political prominence the forms of church worship are scrupulously observed, especially in such matters as the various masses for the dead.

The women for the most part seem to be genuinely devoted to their religion. Among the men, there is a

general impression that in many cases the devotion is largely on the surface, but such an impression is obviously incapable of proof or disproof, and if proven would not differ startlingly from the impressions that prevail in many other countries, whether Roman Catholic or Protestant. Certainly in the honors accorded to the Papal Nuncio and to the high officials of the Roman Catholic church there is no evidence of a diminishing respect or regard for that institution.

The Position of Woman

In the position of woman in the social order of Brazil, as in the position occupied by the Roman Catholic church, the situation today is the result of century-old tradition and inheritance. The stringent restrictions on the freedom of action of the daughters of the household are still observed to a remarkable extent in the best of the native families. Their contacts with young men are most carefully guarded and supervised, and the choice of their future husbands is still a matter so largely directed if not controlled by the parents as to be almost incomprehensible to Americans, and particularly to American women.

After marriage the Brazilian matron is still largely restricted in her intercourse with men other than her husband to a purely formal meeting under more or less stereotyped conditions. Her place is distinctly in the home, and her chief duty, as well as her greatest pride, is the bearing of children. Nor is it customary for the hospitality of the Brazilian home to be opened to male visitors, and when it is, the matron of the house does not figure in the rôle of entertaining hostess.

The married women have outside interests, it is true, such as church and charitable activities, the opera, concerts, trips abroad, reading and visiting with other women, but they have no part in politics or business. Naturally, to the emancipated women of England and the United States, the typical existence of the well-bred Brazilian woman seems drab and colorless, and they are inclined to look with pity if not contempt upon her manner of life. Judging from a very limited observation and inquiry, however, neurasthenia, which, observers say, is getting to be a typical affliction of the better class of American women, is a relatively rare complaint among the mothers of large families in Brazil.

What has been said may be regarded as describing the traditional and still typical position of the Brazilian woman. But a number of factors are contributing to break down this condition. In the metropolitan centers, such as São Paulo and Rio de Janeiro, the influence of other ideas and standards is slowly making itself felt. Young Brazilians who have visited Great Britain and the United States for travel or for study find their traditional attitude considerably modified, and young women, whether married or unmarried, have derived from their contacts abroad a new conception of the liberties which women may enjoy and still be regarded as respectable in other society. Athletics and outdoor sports of all kinds are becoming increasingly popular and contribute their share to breaking down the rigid barriers that separate the two sexes.

Medicine, law, architecture, and business are still closed professions to young women in Brazil, not because of legal restrictions but because of social dis-

favor. But writing, sculpture and painting, music, and even the stage can be taken up without loss of social prestige, though voting and office holding are not yet opened up either by law or custom.

At the other end of the social scale women have entered into industry, with the result of a great enlargement of their freedom of activity. The telephone has drawn many girls into occupation outside the home, and even stenography and typewriting are being invaded by the gentler sex. It seems clear that this development is bound to go on until most of the traditional inhibitions have been swept away. But it will be no such rapid development as it has been in the United States, and the more remote and conservative sections of the country will retain their present characteristic attitude for many years to come. School teaching seems to be regarded as a reasonably genteel activity for women, and the spread of popular education is bound to draw an increasing number of well bred and well educated young women into semi-public life, thus inevitably widening the circle of persons who tolerate and exemplify the more modern point of view.

Morality

Morality is so largely a matter of pure conventions that it is next to impossible to arrive at judgments from an objective point of view. What is taboo in one community or country is *au fait* in another, and vice versa. But since we are interested here in what are the social standards of this country we have been examining, it may be permissible to make some comments on various phases of this question that strike the American most forcibly.

Probably the first connotation of morality to occur to the American mind is that of sexual relations. In this respect it may be said that the general attitude of society in Brazil is much less rigid in this matter than with us, at least with regard to the males. Sexual irregularity among women of the better classes is even more violently condemned than in the United States. But continence among young men is not, it would seem, generally regarded as a virtue, and, while faithfulness is an absolute *sine qua non* of respectability for the wife, departures from the straight and narrow path involve no social ostracism for the husband. What is scrupulously covered up and buried by the aspirant for public esteem in the United States, is not regarded in Brazil as being particularly the business of anyone but the parties concerned. This difference in point of view is undoubtedly in part at least due to the fact that women have no share in the framing of that public opinion which, after all, is much more of a force in molding the actions of individuals than are laws and decrees.

Next to the social evil, perhaps the most prevalent of what are in the United States commonly regarded as vices, is gambling. Gambling seems to be a well nigh universal human instinct, and where its more notorious public manifestations have been suppressed, it has only been after great effort followed up by eternal watchfulness. This effort has not been in evidence to any great extent in Brazil. The lottery is a public and legalized institution from which both the nation and the states derive an appreciable revenue. Though the lottery may be condemned as catering to the gambling instinct, when, instead, sound economic policy demands its greatest possible suppression, yet

there is something to be said for providing an outlet for this instinct under conditions where at least fraud and theft are eliminated. But the difficulties encountered by the police in Brazil in effectively suppressing the "bicho," an illegal form of sub-rosa lottery playing which is widespread in Brazil, would appear to prove that the provision of an official and aboveboard outlet for the gambling instinct does not seem to diminish the practice of other less tolerable forms of gaming. We may perhaps accept as authoritative the opinion expressed by such leaders of public thought in Brazil as Senator Alfredo Ellis, that gambling is one of the three great curses of Brazil, the other two, in his opinion, being illiteracy and alcoholism.

The mention of alcoholism raises another point on which there is bound to be considerable interest in the United States. Prohibition has scarcely been thought of in Brazil, has more rarely been mentioned, and seems to be about as remote a possibility so far as legislation is concerned as any issue that might be raised.

In this connection one is struck with the fact that, while the consumption of alcohol in one form or another in Brazil is stupendous, the educated and prominent men one is likely to meet in Rio de Janeiro and São Paulo are extremely abstemious men. A surprising number of them take no alcoholic drinks of any kind, and many more restrict their drinking to a glass of champagne on some formal occasion or a light wine with dinner. Drunkenness even among the younger set is regarded as a disgrace, and even on the streets of Rio de Janeiro an intoxicated man is so rare a sight as to be noteworthy. The cocktail habit, the curse of our "better class" of society, since prohibition as

well as before, has fortunately made but little headway in Brazil, and the regular customers who fill the bars of the leading hotels are nine-tenths English and Americans to one-tenth Brazilian.

But among the laboring and poorer population throughout Brazil the curse of alcoholism rests with a heavy hand. Sugar rum and a great variety of strong drinks with strange names undermine his physique and deplete his none too stout purse. With that problem the government is ultimately going to have to deal if the nation is to attain the maximum development of which it is capable.

But let us look at the other side of the picture as well. What of the qualities which we regard as virtues: honesty, integrity, love of family, patriotism, hospitality, courtesy, and a host of others? In these respects I am frank to say that I found the Brazilians whom it was my privilege to meet in every way the equal of what we should call our most finished gentlemen in this country, and I have the testimony of many other foreigners to the same effect. That there are the same gradations of people in Brazil with respect to these qualities which we have in the United States in common with all other peoples of the world, I have not the slightest doubt, though I was fortunate in not being thrown into contact with any of the less pleasing specimens. But a gentleman is a gentleman the world over, whether he speaks English or Portuguese or Siamese, and the Brazilian gentleman impressed me as one of the most likable I have ever met. History has shown that Brazilians can be courageous, self-sacrificing, and steadfast in their love of country in exactly the same way as the people of other countries. Personal contact in daily life with their most worthy representa-

tives affords evidence enough of their possession of the less spectacular but no less important qualities mentioned above. We may with justice regard them, therefore, as a people possessing essentially the same qualities and defects encountered in other peoples, including our own, and in about the same proportions, the differences that strike one most forcibly at first glance being largely on the surface.

CHAPTER XVI

A WORD OR TWO FOR THE TOURIST

WHY should anyone want to take a trip to Brazil? If that question has not in large part been answered in all that has gone before, either the author has been lacking in effectiveness of presentation, or the reader is wholly lacking in that divine restlessness which is best described as "wanderlust," or the love of travel.

Speaking broadly, there are two main classes of persons who travel: those who travel for business, and those who travel for pleasure. But there is, of course, no reason why any particular person should not combine the two motives. And whatever may be the motive, the few suggestions contained in this chapter should prove equally helpful.

So far as business reasons are concerned, it may be sufficient to revert to the fact that the United States, though she lost in 1922 to Great Britain the first rank she had held as a result of the war in the value of goods sold to Brazil, still retained second place, and even under the unfavorable conditions existing in Brazil due to the drop in the value of the Brazilian milreis, goods to the value of more than \$45,000,000 were purchased by Brazil from the United States in 1923. That is no mean order and is unquestionably capable of further expansion if intelligent effort be made.

Some idea of the Brazilian needs which American exporters are satisfying may be gained from a mere

enumeration of the chief articles of export, ranked in the order of their value. These included in 1923 the following: gasoline, illuminating oil, flour, automobiles, coal, lubricating oil, rosin, and barbed wire. These were the classes of goods sent from the United States of more than \$1,000,000 in value each. But the large variety of exports is of equal interest, for although their present export value may be small, they are evidence of an already existing demand which is capable of being expanded with consistent and intelligent effort. Among these may be mentioned such peculiarly American specialties as agricultural machinery, locomotives, sewing machines, typewriters, and motion picture films. An examination of the goods Brazil imports from other countries reveals a great many other articles which are produced in sufficient quantities for export in the United States but for which no market in Brazil has been sought.

What has all this to do with the subject-matter of this chapter? Just this: The American manufacturer and exporter has fortunately at his command the excellent service of the Bureau of Foreign and Domestic Commerce of the Department of Commerce at Washington, as well as the detailed consular reports from Brazil, to inform him on trade conditions and to furnish invaluable advice in regard to the development of the export market in that country. But no amount of reading of reports, however excellent they may be, and no amount of specific advice, however sound it may be, will diminish the importance of the information gained and judgments formed as a result of first-hand personal visits and individual contacts resulting from trips of inspection to the country itself. I happened to be in Brazil during the acute crisis

through which branches and agencies of American exporting concerns passed as a result of the decline in the purchasing power of the milreis. In more than one quarter I heard the complaint that no amount of reports and letters seemed capable of explaining to the responsible "higher-ups" at home the peculiar conditions existing and the best way of meeting those conditions. "If only they would take a trip down here and examine the situation personally, much improvement would result." So spoke more than one harassed Brazilian representative of impatient home offices, and there is no doubt that some of the American concerns that withdrew from the Brazilian field in that difficult time, after successfully building up a good-will for their business, could have weathered the storm had their chiefs in the United States gone to the trouble of a personal visit.

Moreover, although our consular agents and trade commissioners are high-class, capable men, trained to analyze business conditions and enjoying the advantage of being right on the ground, they are not as a rule men with actual personal business experience. Their impressions and conclusions conveyed to the prospective American exporter in reports and answers to personal inquiries can never be of as much value alone as those same impressions and conclusions conveyed in personal conversation to the American business man coming to Brazil and seeing matters through his own eyes, right on the ground, as well as through the eyes of our official representatives.

So much for the man who may have business reasons to attract him to Brazil. As for the person traveling purely for pleasure, it is sufficient to summarize the principal attractions of the Brazilian tour. A delight-

ful ocean voyage on splendid modern steamers, escape from either sweltering heat or freezing cold, a wholly new and unfamiliar landscape, beauties of nature unsurpassed in their kind in the world, and withal historic associations going back more than a hundred years before the first settlement in Jamestown, would seem to offer a sufficient variety of inducements to tempt even the travel-weary globe-trotter to gird up his loins once more for an excursion to the land of the brazilwood.

To the traveler, whether bent on business or pleasure, I would say with the greatest emphasis, by all means devote a sufficient time to the study of Portuguese before undertaking the trip to be able to read and understand the language and to carry on at least a limited conversation in it. Hotel porters in all the more important places have a certain command of English, and in the larger shops there are usually one or two clerks who know enough English to understand your wants. Among the public officials and educated classes of Brazil there is a surprising number who understand English and a more surprising number who speak it without ever having sojourned in England or the United States. There is even an American weekly publication in Rio de Janeiro and some English periodicals are published there, and the booksellers carry a full line of American magazines, and even newspapers from two to four weeks old. So the American traveler is by no means isolated or helpless if he speaks and understands merely his native tongue.

But the pleasure and profit to be derived from even the briefest trip are so enormously enhanced by an acquaintance with the language of the country, that

such equipment should properly be regarded as an important part of the traveler's outfit, on a par with proper baggage and clothes. One American business man of my acquaintance, in charge of an American branch house in Rio, had been in Brazil two years and could not carry on an ordinary conversation in Portuguese. He transacted all business by means of an interpreter, and then wondered why his affairs were not progressing more satisfactorily. For the casual tourist the ability to read the daily papers, to understand the snatches of conversation heard on the street, tramway, or railroad train, to converse with the driver of his taxicab, to enjoy the plays and musical comedies offered in the theaters, to appreciate the speeches in the legislative halls, at celebrations, or in the various congresses that are continually being held, marks all the difference between visual impressions only, and the broader insight into the people and their institutions that comes from reading and hearing as well. Time, money, and energy spent on acquiring at least a rudimentary knowledge of the language, will be more than repaid by the fuller enjoyment derived in consequence from the trip.

Experience has shown the necessity of dispelling an illusion in regard to this matter of language in Brazil. The language of the country, as has been pointed out before, is Portuguese not Spanish. The two languages sprang from the same root, it is true, and there are marked similarities. But they are not the same, and to suppose that Spanish will serve in Brazil as a medium of conversation is to ignore the fact that the Brazilians are as proud of their language as any other nation is of theirs. They are somewhat sensitive on the subject, therefore, especially when it appears that

the American visitor does not even seem to know that their language is distinct. An intelligent traveler would not think himself well equipped to get along in Norway, simply because he could speak Swedish, nor in China because he was acquainted with the Japanese. No more is Spanish linguistically legal tender in Brazil, and it is not to be wondered that the Brazilian assumes an attitude of incomprehension somewhat beyond the strict facts of the case when an English speaking foreigner addresses him in Spanish, evidently under the ignorant impression that he is speaking the language of the country. Even some of our supposedly acute business men have been fooled into sending to Brazil representatives who claimed to be qualified on the language score because they possessed a smattering of Spanish.

What is the best time of year to visit Brazil? Fortunately that depends rather on the convenience of the tourist than on the exigencies of the Brazilian climate. Generally speaking, American tourists like to escape either the rigor of excessively cold winters, or the rawness of cold, wet springs, or else the dog days of our continental mid-summers. Much the largest number, of course, do their traveling in the summers when business can best be abandoned or children are out of school. For this large class Brazil offers special attractions, for the months from May to October are not merely the coolest months so far as temperature is concerned, but as has been seen, in discussing the climate of the individual states, are also the months of the dry season. This last consideration is of importance not merely because rainy weather is unpleasant, but also because the torrential downpours of the rainy season in parts of Brazil may cause interruptions of

traffic on the railways, and even more because disease-bearing mosquitoes are least plentiful in the dry months of the year. For the most of northern Brazil this is easily the best time of year for the visitor.

On the other hand, the tourist seeking to escape blizzards and zero weather in the months from January to April, which represents the summer and fall seasons in southern Brazil, will find on the plateau of central and southern Brazil, and especially in the mountain resorts, truly delightful conditions. The days are warm, to be sure, and there is considerable rain, but the nights are delightful and the summer vegetation is at its best. Temperatures as low as freezing will never be encountered in this season.

So while certain regions in Brazil are more agreeable in one part of the year, and others are more attractive in another part, much of the country, particularly that of most interest to the tourist and including Rio de Janeiro and central Brazil generally, can be visited in comfort at any time of the year. If the coffee flowering months in São Paulo attract the tourist particularly during September and October, the social and theatrical season offers its chief attractions there and in Rio during the months from April to September, while the neighboring watering places and mountain resorts call most loudly from November to May.

What clothing should be taken along for the Brazilian trip? The answer to that query has been pretty fully indicated in the description of climatic conditions already given. Light summer clothing is always in demand. In Rio de Janeiro, for instance, straw hats are worn for twelve months in the year, and there are very few days on which a light weight summer suit will

not feel entirely comfortable in that city. In northern Brazil, that is, from Minas Geraes northward, the same description will apply. A light weight rain coat is a valuable accessory to the wardrobe at any time of year, and in the rainy season, that is, broadly speaking from October to March, it is an absolute necessity.

In the elevated portions of the central Brazilian plateau light overcoats are a necessity for evening wear throughout a good part of the year, and in the winter season in that region regular winter overcoats are none too warm. In south Brazil, where freezing weather, biting winds, and on rare occasions even snow are encountered during the winter, June, July, and August, the same clothing is required as under similar conditions in the United States, and owing to the insufficient heating of houses even warmer underclothing is required to keep warm. I was under the painful necessity of grieving the management of the best hotel in São Paulo, a splendid new modern hotel with all the latest improvements, by wearing a summer overcoat in the dining-room in order to keep warm, early in June.

I would not venture to offer any advice to ladies on the subject of wardrobe, for I have never solved the mysteries of the little they can wear in cold weather, and of the summer furs they put on when mere men feel like taking off their coats. Nor can I be of any aid in enumerating the occasions on which sport suits, street dresses, coat suits, tea gowns, or décolleté are *de rigueur*. I presume those fundamental matters are regulated by the powers that be for the feminine world everywhere. I do remember furs being worn in Rio de Janeiro on days when cool drinks were very refreshing. But for the male contingent it will be well to

point out that dinner coats are in demand at theaters and operas, in the dining-rooms of the better hotels, and even at private dinners. For many official functions full dress is worn, even in the daytime, and the old-time Prince Albert, though still in use, is being displaced for daytime functions by the cutaway. The traveler who has no expectation of sharing in receptions, dinners, or balls, need not, of course, burden himself with this excess baggage.

One matter of dress seems to merit special mention. A gentleman in Brazil does not appear in public without his coat on. He may be wearing the most beautiful shirt of expensive silk, but that does not excuse his making a display of it by taking his coat off. In fact first class passengers on public conveyances, street cars, railways and steamboats, are not permitted by the regulations to take off their coats. A large group of American tourists, arriving on a specially chartered steamer at Rio during my stay there, hired automobiles to drive them around the city and proceeded to make themselves comfortable by taking off their coats. The day was hot and the procedure would have aroused no comment in the United States from Podunkville to New York City. But it made a very unfavorable impression among Brazilians, and tactfulness should have prompted some informed American to call the attention of the unsuspecting visitors to this breach of national etiquette. It is apparently insignificant items like this that play a more important part in true international understanding, than major blunders by diplomats.

This particular national custom in the matter of dress seems an unfortunate one for a country in which the greater part of every year consists of days warm

enough to make one feel more comfortable with one's coat off. But it is not for Americans to alter the custom if they would be regarded as gentlemen. My own objections to the custom were somewhat reduced by the memory of a dining-car steward, in the practical and sensible United States, who told me on one occasion, when the temperature in the diner as recorded by the thermometer was 110° F., that I would either have to put on my coat or get out. All of which is merely intended to impress upon the tourist the wisdom of a supply of the very lightest sort of summer suits.

What is the best way to reach Brazil? Prior to the World War, communications between the United States and Brazil were very bad. A single line of freight steamers with passenger accommodations sailing at long intervals from New York took nearly three weeks for the trip to Rio de Janeiro. It was more comfortable and just as rapid to cross over to England and take an English line to Rio. But with the establishment of the Munson Line service after the war, operating for the United States Shipping Board, this situation was wholly changed. Regular bi-weekly sailings were established, large and commodious ships were available, and the sailing time cut from three weeks to twelve days by these American boats. These improvements in facilities for travel to the East Coast of South America forced the British Lamport and Holt Line, which formerly enjoyed the monopoly in this field to modernize their service, put new steamers of greater speed into commission, and offer equal comfort and inducements.

Today, therefore, there are four modern fast passenger steamers leaving New York each month. As

a result of the competition, moreover, the rates have been so reduced that this modern service is offered at prices no greater than were charged formerly for the unsatisfactory facilities available. In comfort and service these steamers to Brazil are the equal of the best of the transatlantic liners, with a displacement of more than 20,000 tons, and although the distance from New York to Rio is 5,000 miles as compared with 3,000 to Europe from New York, the round trip rates of \$300 for first class accommodations to Rio are cheaper than equally good accommodations on the European service, at least in the season.

As between the two passenger lines there is little choice so far as quarters, food, and service are concerned. The Lamport and Holt Line is not subject to the provisions of the Eighteenth Amendment after it has passed the three-mile limit, but the Munson Line regularly beats the best sailing time of the British Line by four or five days. But some travelers would consider the absence of a ship's bar as an advantage and might be prompted by motives of patriotism to prefer the American line anyway, or rush of affairs might make them prefer the quicker service. Others might deem the bar a *sine qua non* of comfortable travel, or being less pressed for time or especially fond of ocean travel might prefer the slower service on that account, leaving all questions of patriotism to one side. It may not be impertinent to remark in this connection, however, that a Britisher can as a rule be counted on to travel only on an English boat and to ship his goods only in English bottoms, even if some other national steamship service offers evident advantages.

Large airy cabins, equipped with private baths,

regular beds in place of bunks or berths, hot and cold running water, and electric fans, are among the features that make travel to Brazil in these splendid steamers a pleasure. As a general rule, after the stormy regions off the North Carolina Capes have been passed, the sea is likely to be calm, and balmy airs are the rule for the rest of the journey. The tropical Atlantic, which is sailed clear to Rio de Janeiro, is quite a different ocean from the stormy North Atlantic, and many a passenger who has suffered the torments of the damned in the six-day crossing from New York to England, has enjoyed the twelve-day sail to Rio without a qualm. All the usual diversions of up-to-date ocean travel are his for the asking, library, gymnasium, swimming pool, and deck games, with the interesting ceremonies incident to the crossing of the Equator as an added attraction. Music and dancing are, of course, a daily and nightly feature, and the latest news by radio is printed or mimeographed every day for the passengers. Therefore, for all except those unfortunates for whom an ocean voyage even under ideal conditions is a thing to be dreaded, the ocean journey to Rio from New York is a delightful recreation to be had at a remarkably reasonable expenditure as such things go.

There are other ways of reaching Brazil from the United States than by these two passenger lines from New York. The Lloyd Brasileiro runs a bi-weekly passenger service as well. But neither in size of ships, speed of passage, nor material comforts can this line be compared with the two first mentioned, though it presents the undoubted attraction of offering cheaper rates. Then there are cargo boats of various lines that have limited passenger accommodations for from

five to fifteen passengers, sailing not only from New York but from other Atlantic ports, as well as from Gulf Coast ports, such as New Orleans and Galveston. For a time the Shipping Board ran a line of passenger steamers from the Pacific Coast of the United States through the Panama Canal to Rio de Janeiro and the Plate ports. But that service has now been discontinued, a Japanese line which touches on the Pacific Coast and passes through the Canal to Rio, stopping at Galveston and New Orleans, now furnishing the only regular service available for passengers from the Pacific states. These cargo boats are uncertain in the dates of sailing and arrival and are a long time in transit. Curiously enough they are not as much cheaper as one would expect from a comparison in facilities afforded. They are praised by many travelers who have tried them, but to the average American tourist who likes service and plenty of it, they are hardly to be recommended. It adds some element of adventure to travel that way, and the various stops at intermediate ports furnish some attraction, but whoever wishes to make the 5,000 mile water journey to Rio de Janeiro in the most comfortable and expeditious way will do well to engage passage over one of the two main lines from New York.

What is the cost of a trip to Brazil? This is an important question which is always asked and never answered. The first class steamship fare from New York to Rio de Janeiro and return has already been indicated. But even that is not the whole story. Tips to stewards, subscriptions for disabled seamen, benefits for the ship's orchestra, may be counted on for an additional ten per cent, and there are the extras for drinks, hard or soft, depending on the line chosen and

the preferences of the passenger, but always expensive and mounting in two weeks' time to a considerable item. The daily pool on the ship's run and the entries in the various deck games can hardly be escaped by the passenger who wants to keep the respect of his fellow passengers, and above all of the stewards. Card playing is a universal pastime, and even when played for very moderate stakes, may in the course of a journey add another appreciable item.

If it is impossible to foretell what the total cost of the sea voyage may turn out to be when the cover charge, so to speak, is definitely known, it is obvious that no estimate can be given for the expense of the actual sojourn in Brazil. How long will you stay? How much traveling do you expect to do? Do you insist on the most expensive hotels? Are you a victim of the souvenir bug? Are you extravagant, moderate, or miserly in the important matter of tips? Do you go in much for theaters and other amusements? All these and a host of other questions would have to be answered first before even a rough estimate could be made.

These considerations apply to travel in any country of the world. But in Brazil there are additional difficulties due to the fluctuations in exchange. Many items of the traveler's expense account represent charges that are not affected much, or at least not for a considerable time, by exchange variations. Take railroad rates for instance. They respond but slowly to differences in exchange, being in many cases fixed by law in terms of Brazilian money. In consequence, the railroad trip that cost the visitor say, \$25 in 1920, cost him only \$13 in 1921, and \$10 in the next year. If the exchange returns to normal in the following year,

a visitor finds that the journey described by a friend as well worth while and costing only \$10 has mounted to \$25, though the quotations in milreis have remained the same. To a lesser extent this is true of hotel charges, restaurant charges, and amusement charges, whereas purchases which the traveler may have to make, particularly of imported merchandise, are much more sensitive to fluctuations in exchange value.

In general, it may be said that prices in everything have been mounting very rapidly in terms of milreis in Brazil, and it is not likely that a return of the milreis to normal exchange value would result in any noticeable drop. The only help that can be afforded to the prospective traveler at all in this matter of expense is to give some prices of such items of expense as hotels, meals, railroad fares and sleeping car tickets in 1923, in terms of milreis. From his own banker he can readily ascertain what the exchange value of the milreis may be at a particular time, and that will give him some conception of how much American money he may need.

In one of the thoroughly up-to-date modern hotels, built for the Centennial Exposition in Rio de Janeiro, a double room with bath, including meals for two persons, could be had in 1923 for 100\$000, one hundred milreis a day. At that time this represented only \$10 in American money and was of course remarkably reasonable, for not only was this hotel the best in Rio, but quite the equal of the best hotels anywhere. At normal exchange rates of four milreis to the dollar, however, this would be the equivalent of \$25 in American, not by any means cheap. Until recent years the so-called American plan was almost universal in Rio, that is, the charges were always for rooms and meals.

The European plan, so-called, is, however, now being more widely introduced, and the Exposition period saw the erection of several new hotels operating on that basis. It is one of the curiosities of travel that the American plan is found in operation everywhere but in America, and the European plan is practically universal in the United States.

In São Paulo, a brand new hotel opened up in 1923, and the equal in every respect of the best in Rio, charged about 20 per cent less for the same accommodations, that is, 80\$000 per day. That ratio seems to hold true in general as between major items of expense in the two principal cities of Brazil.

Meals at restaurants vary, of course, with the character and amount of the food and drinks ordered, but a fair comparison can be instituted by pointing out that very good table d'hôte luncheons were served for 6 or 7 milreis, and dinners for 10 milreis. Shoe shines cost 300 reis, which is written \$300 and represented at that time 3 American cents, newspapers were 200 reis, hair cuts 2\$000, street car fares from 200 reis to 400 reis by the zone system, and taxi fares a minimum of 2\$000 (2 milreis). It was one of the astonishing features of Rio, that with American automobiles more than doubled in price as a result of the drop in exchange, and oil, gas, and tires, correspondingly high, the taxicab drivers, who all own their own cars bought on the installment plan, seemed to make money out of the very reasonable rates charged.

Lottery tickets are available at every price, from a few cents up, and almost every stranger takes a fling or two at some grand prize. I never happened to meet any visitors, however, who had won anything in this way, though the drawings are carefully supervised by

the government agencies in the interest of fairness. American magazines are to be had in great variety, but naturally at rather high prices. The most expensive item that came to my notice in Rio was the charges made by American dentists, but fortunately for the tourist it is only on rare occasions that he is subjected to any such expense. Ordinary visits by physicians cost around 30\$000, a very reasonable charge in terms of American money as the rate of exchange then stood.

If the visitor has to purchase clothes of any sort, he will find the prices quite as high as in the United States for anything that has been imported, and that means English woollens and other cloths, and silks. But articles of Brazilian manufacture, including all forms of cotton goods, hats, and shoes, are good in quality and cheap in price with exchange so far below par as it was in 1923. The American visitor who insists on being supplied with his favorite home brand of shaving materials, toilet goods, or cosmetics, will naturally pay the American price plus freight and import duties, which are high. Laundry is an important item in such a climate, and although washerwomen can be found to do family washing very reasonably, laundries and hotel cleaners are but little below the standard prices charged in American hotels. Brazilian-made cigars and cigarettes, of very good quality, are cheaper than the same grades in the United States, but imported Havana cigars are expensive.

These random items will give some idea of prices in Rio de Janeiro. As a rule these are higher than in other parts of Brazil, but as regards luxuries, among which must be included many items that Americans ordinarily regard as necessities, the more remote the

region into which the traveler penetrates the more expensive these become, if indeed they can be found at all. In Bello Horizonte, capital of the state of Minas Geraes, and some 400 miles by rail from Rio, room and meals at the best hotel cost 12\$000 a day, the equivalent at that time of only about \$1.25 in American money, but a room with private bath could not be had at any price.

Some idea of the cost of railway travel can be obtained from the following items selected at random. From Rio de Janeiro to São Paulo is almost exactly 500 kilometers, or about 312 miles. The first class fare on the government owned and operated Central do Brasil was 40 milreis in 1923. This was the equivalent of only \$4 at the then rates of exchange, but would represent \$10 at ordinary exchange rates of four milreis to the dollar. At the latter figure that would be just about the same as our standard rate of 3 cents a mile in this country. Parlor car seats for that journey were 6\$000 and state rooms on the best night train were 60\$000, while lower berths on the ordinary night trains were 18 milreis.

Steamship travel, still the most important mode of travel in all of Brazil north of the states of Minas Geraes and Espirito Santo, is very cheap compared with railway travel, but if privacy is desired by a person traveling alone and desiring an entire cabin to himself, the difference is not great.

For the tourist wishing to leave the beaten routes of railroad and steamship travel, I have no reliable information. In a few cases automobile stages are available, but most of the traveling in the interior, away from railways and steamboats, must be done on horseback, and the charges for horses and guides are

largely a matter of personal dickering. But as the number of tourists desiring to rough it in this way is not great, this may not be a serious omission.

Before leaving the subject of expenses, it is well to say a word about the money used in Brazil. A.B.A., or American Express Company travelers' checks in reasonably small denominations, are the best form in which to carry funds. They can be cashed at almost any hotel, and the latter particularly involve no delay for identification. Letters of credit can be used in the more important cities, the National City Bank of New York having branches in Rio and São Paulo and several other important centers. But the formalities of identification are greater, the number of bank holidays is larger, and the service is much slower than that to which the American is accustomed at home.

In changing American money into Brazilian currency, it is well to remember that hotels and storekeepers charge a high commission. Money changers are numerous, but as a rule they do not give as good a rate as the banks. Even as between various banks there may be appreciable differences, and if any considerable sum is to be converted, it is worth while to find out where the best rate is being given. Moreover, worthless paper money is more common in Brazil than with us, and the best security against counterfeit bills or bills of issues that are in process of being withdrawn and so are diminishing in value, is to transact all such business with the banks.

Fixed prices are coming to be more and more the rule in the better class of stores in Rio. But dickering still plays an important part in shopping economically, and even hotel charges are not wholly beyond the possibility of adjustment by agreement. The American,

calculating prices in terms of American dollars, is inclined to look upon the milreis with disdain, and the shopkeeper, knowing that, is not above charging him correspondingly more, at least to the extent of insisting upon the marked price, which is usually somewhat above the price at which he is willing to sell to canny buyers. This, of course, is especially true of souvenir and jewelry shops, the latter particularly finding Americans rather easy marks as a rule.

How much time should be allowed for the Brazilian tour? Here again the leisure, finances, and inclinations of the individual are the only true criteria. For the traveler who enjoys the ocean voyage itself, a tour that consisted merely of the trip from New York to Rio with a week's stay there and then right back would, to my mind, prove one of the finest ways to spend a month that could be imagined. "See Naples and die," is a familiar pæan of praise of the Neapolitan. But for sheer majesty and beauty, a sight of Rio de Janeiro is incomparably more impressive than a view of Naples, even though no smoking Vesuvius enters into the picture. To have entered Guanabara Bay for one single day is an experience that fully repays anyone with a sense of the beauties of nature for the trip.

But, of course, the visitor who has come this far should strive to do more than merely glimpse the beauties of the harbor. Rio de Janeiro presents enough attractions of all kinds to keep the most inveterate trotter busy for many days. Drives about the city, excursions into the hills and on the bay, visits to the public buildings, walks in the public gardens, attendance at the theaters and night clubs, are all almost a part of the regular routine of the visitor to Rio. Sev-

eral guide books are available in English, pointing out the chief places of interest, and hotels of the first order are available either in the heart of the city, on one of the splendid beaches where bathing is enjoyed the year round, or on the heights back of the city proper. Even the most restless tourist should allow a week for the city of Rio de Janeiro.

Then in the immediate environs of the capital there are beautiful mountain resorts reached in a couple of hours by railroads that scale the abrupt ascents of the serra by cog wheel road and offer never-to-be-forgotten vistas of the city and bay. Nova Friburgo, Therezopolis, and Petropolis are to the people of Rio what the resorts of the Catskills are to New Yorkers, and beautiful roads for automobiles, or trails for saddle horses, furnish added attractions which every visitor to Rio should enjoy.

From Rio de Janeiro as a center, railways extend in three directions, offering opportunities for the visitor to become acquainted with typical Brazilian landscapes and cities. Through trains with sleeping cars take him northeast to Victoria, the beautifully situated capital of Espirito Santo, with a harbor that rivals that of Rio in beauty. Here he passes through a typical stretch of the low marshy coastal plain of Brazil, the land of the sugar cane par excellence. The distance is 600 kilometers and requires 21 hours.

To the southwest is São Paulo, capital of the state of the same name, and frequently called the Chicago of Brazil. Fast trains with all the features of modern travel cover the 500 kilometers by night or day in twelve hours. The ascent of the serra shortly after leaving Rio offers all the beauties of mountain railroads, and the country through which the train passes

after scaling the heights is typical of a large part of the Brazilian Plateau. São Paulo itself should not be missed, and offers every comfort and convenience to the tourist. From there as a center brief excursions by railroad or motor bring one into the heart of the coffee country in one direction and to the port of Santos in the other. Here, again, the ride down the steep sides of the coastal range is an experience no lover of nature would want to miss.

A very pleasant and interesting week can be spent in this bustling modern metropolis and in trips to coffee fazendas and down the picturesque serra to the great coffee port of Santos and its beaches. From São Paulo also, through trains with pullman and dining-car service carry one northwest into the very heart of the state, even past the coffee country into the cattle region, where thousands of head of cattle from Matto Grosso and Goyaz are fattened for the packing plants of São Paulo. If time is not pressing and one wants to get a notion of the "Far West" of Brazil, through service with sleeping cars is now available clear to Porto Esperanza on the Paraguay River, 1,711 kilometers or 1,000 miles northwest of São Paulo in the state of Matto Grosso and near the international boundary with Bolivia. As in the case of a number of the railways of Brazil, through service is not to be had every day, so that it is necessary to plan one's itinerary with reference to the time-table. In 1923, when this through service was inaugurated for the first time, there was only one through train a week each way. Otherwise the regular service provides passenger trains only in the daytime, the through traveler stopping overnight at designated stations. This is not by any means a bad way to see the country, for nights

spent on the train are lost so far as sightseeing is concerned, and the stopovers are usually of such a nature as to enable the passenger to obtain some idea also of the places in which he spends the night.

On the other hand, the accommodations in these remote towns is not of the first class; the favorite hour for the departure of trains is somewhere between 5 and 7 o'clock in the morning, a beastly time to catch a train, and the length of any given journey is of course doubled. The time from São Paulo to Porto Esperanza on the through service was three days and two nights, not a very exhilarating schedule for even such a long journey in rough country. But it is the best way for the curious traveler to make a first-hand acquaintance with this enormous section of Brazil, destined some day to play a vital part in the economy of the country.

From São Paulo southward railroad service opens up the great states of Paraná, Santa Catharina, and Rio Grande do Sul to the tourist who is desirous of viewing that region, which, as has been pointed out in earlier chapters, presents many interesting characteristics of importance that make it almost a different world from the tropical Brazil of the story books and of reality.

Three times a week through service with pullman sleepers is available from São Paulo clear to Porto Alegre, capital of Rio Grande do Sul, a distance of 2,244 kilometers, or 1,400 miles, requiring three days and nights, at a cost (in 1923) of 144\$000 for the railway and 42\$000 for a lower berth. On three of the other days through sleepers are run to Curityba, capital of Paraná, some 870 kilometers away, or 542 miles, the journey requiring 36 hours at a cost of 60\$000, with

20\$000 for a lower berth. Then once a week there is pullman service from São Paulo, over the same lines, clear to Santa Anna on the border with Uruguay and connecting there with through trains to Montevideo, the capital of Uruguay. This journey, 2,000 miles in length, requires seven days, including overnight stops at Santa Maria and on the border.

A very good idea of this section of Brazil can be obtained by making the trip by rail downward, and then back by steamer from Porto Alegre, touching at most of the important ports on the way back to Rio. But from three weeks to a month will be required, depending on the amount of time spent in each place, and the steamer connections made. It is an interesting trip but not an easy one on the whole. In planning such excursions as these, it is well for the tourist uninitiated into the mysteries of the Portuguese language and particularly of Brazilian time-tables, to secure the assistance of one of several tourist agencies that can arrange his itinerary, secure his tickets, and make his reservations at hotels and on trains and steamers.

Back in Rio again, which makes the logical center for the tourist's expeditions into the rest of Brazil, and the marvels of which can be seen repeatedly with increasing enjoyment, the next logical trip would be up into the mining regions and the interior of the great state of Minas Geraes. Here, again, is a great distinctive section of the country with which the tourist can easily become familiar. Compartment sleeping cars will take him through without change to Bello Horizonte in 16 hours, or the journey can be made by daylight in pullman parlor cars, at a cost (in 1923) of 43\$000 for the ticket and 24\$000 for the lower berth. Bello Horizonte itself is interesting, not only

because it is the capital of the most populous state in the Brazilian Union, and nearly four hundred miles from the seacoast, but because it is a city that was built to order in a beautiful location. Moreover, from there as a center, the gold mines, diamond mines, manganese mines, and the great iron regions of Brazil are easily accessible. Minas Geraes contains also some interesting survivors of the towns of colonial days with their multiplied churches, their stirring history, and their primitive ways of living. A week could certainly be profitably devoted to a superficial view of this portion of Brazil. If time permits, the railway will carry one on still farther inland to Pirapora on the São Francisco River, the present terminal of the Central do Brasil. This is another 250 miles farther on, and is about as remote a place as can be reached in Brazil by rail.

A visit to the north of Brazil is a very time-consuming undertaking. But the traveler with plenty of time and with interest in new scenes and different conditions will be more than repaid. In fact, without such a trip he will fail to have gotten a first-hand impression of a vast part of the country, and the part which in some respects is more typically Brazil, certainly of traditional Brazil, than any portion yet mentioned.

By steamer from Rio to Manáos, a thousand miles up the Amazon, a trip which can be made without interruption on ships of the Lloyd Brasileiro, requires three weeks without any stopovers. These steamers stop only at the most important of the northern ports, but enough to give a very fair idea of the vast Brazilian coast line from Rio de Janeiro north. The journey on the Amazon is, of course, the acme of exotic travel,

though it will not provide the tourist with the thrills he might expect after reading "Afloat in the Forest" or some similar fanciful description of the great stream.

Manáos is not what it was in the days of the rubber boom, but it is of unquestioned interest and attraction for the visitor to Brazil and should be included in the itinerary if at all possible. Of course, Manáos by no means represents the end of the line as far as river travel is concerned, for another thousand miles of the Amazon and its tributaries are open to the tourist without great inconvenience, one of the points of special interest being the Madeira-Mamoré Railway in the uttermost edge of Brazil. But now we are dealing with journeys that are not measured by days or even by weeks, and the traveler who does not dispose of months for sight-seeing in the country is not likely to be interested.

Belém, or Pará, as it is more commonly called, at the mouth of the Amazon, is one of the great cities of Brazil and is well worth a visit. Moreover, the tourist who has already seen all of the country he cares to visit, may here catch a steamer to the United States every so often. No palatial liners stop here to take him home, but very comfortable cargo ships with limited passenger accommodations are available and a very satisfactory hotel with reasonable rates will make him comfortable until the somewhat uncertain date of his departure arrives.

If the traveler wishes to catch a glimpse of all the seacoast capitals that dot the Atlantic shore from Rio northwards, he must be content with slower and smaller vessels. Moreover, candor requires it to be noted that in point of accommodations, food, and



Public Gardens and Business Section of São Paulo.

service, these vessels are not likely to satisfy the fastidious traveler. Here the pleasures must distinctly be derived from the tourist's enjoyment of the scenery and the new sights, not from the conditions under which these are seen.

Two of the major seaports of Brazil, however, can be visited with the greatest comfort by sea from Rio. These are São Salvador and Recife, or, as they are more usually known, after the states of which they are capitals, Bahia and Pernambuco. British, French, Dutch, and other steamers of the first class stop at these two ports at frequent intervals, and the three or four days spent at sea in reaching them are spent under the most comfortable and pleasing conditions. Both Bahia and Pernambuco offer many attractions to the tourist. Beauty of natural surroundings, historic interest, commercial activities, and truly tropical conditions of climate and population, all combine to attract and interest the curious traveler. Hotel accommodations, though not of the same high class encountered in Rio and São Paulo, are acceptable and are being rapidly improved.

Moreover, from these cities as centers, brief railway journeys inland show characteristic glimpses of the three regions that are distinguished in almost all of the southeastern Atlantic seaboard states of Brazil, the low sandy coastal plain, the densely overgrown regions just back of the littoral, and the sertão or hinterland reached after ascending the slopes of the serra.

It is unfortunate that some of the greatest natural beauties of Brazil, equaling and indeed exceeding in majesty and beauty similar phenomena in other parts of the world, are still so inaccessible as to be too

remote for the ordinary comfort-loving tourist. Just as the Seven Falls and the Iguassú Falls in southern Brazil, unsurpassed anywhere, are not accessible by railroad, so the Paulo Affonso Falls, equally notable in their way, and about halfway between Pernambuco and Bahia are somewhat difficult to reach. But it is certainly only a matter of a few years before these natural wonders will be reached by comfortable means of travel because of their beauty, if indeed they are not, like Niagara, harnessed for their power.

From Pernambuco it is possible to go by train to the capitals of Parahyba and Rio Grande do Norte to the north and to that of Alagoas to the south. But the service and accommodations offered are as yet scarcely superior, relatively speaking, to the service and accommodations offered on the coastwise steamers that connect these points. Railway travel, no matter how primitive, has, however, the great advantage of affording some view of the region traversed, which will enlarge the traveler's conception of the country he is visiting.

Allowing some two or three weeks for a rapid visit to these two main cities of northern Brazil, with such of their environs as can be reached by rail with little inconvenience, it can be seen that three months of fairly steady traveling will not be too much to give the tourist even a surface view of the chief regions of Brazil, reasonably accessible by rail and boat. If any considerable excursions off the beaten paths are to be undertaken, correspondingly longer time will be required. But it must not be imagined that such a hasty survey will exhaust the pleasure and profit to be derived by a foreigner's visit to Brazil. The longer he stays, the more he mingles with the

people, and the better he understands the language and the entire background, the more will his interest be stimulated. The most sincere admirers of things Brazilian that I found during the year and more of my visit there, were Britishers and Americans who had lived in the country for years, had traveled through great parts of it, and had friends among all classes of the population. But such deeper satisfaction is not, of course, for the visitor whose time is limited to weeks or months and is of necessity crowded with a succession of impressions which inevitably tend to become somewhat hazy and confused.

Whether the tourist have at his disposal for Brazil a single day, a week, a month, or a year, he may rest assured, however, that if he has within him the capacity to see with his eyes, to hear with his ears, and to appreciate with his mind the attractions offered by travel, his journey to Brazil will remain a never-ending source of enjoyable retrospect.

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In the preparation of this volume most extensive use was made of two Brazilian publications of first importance. These were (1) the volumes relating to the Census of September 1, 1920, published by the Bureau of Statistics of the Ministry of Agriculture, and (2) the first two volumes of the centenary publication of the Brazilian Historical and Geographical Institute of Rio de Janeiro.

The first of these publications was issued in a number of separate volumes beginning in 1922, under the general title,

“Recenseamento do Brazil,” Directoria Geral de Estatistica, Ministerio da Agricultura, Industria e Commercio, Rio de Janeiro.

Of these volumes, comprising to date three main ones, together with a supplement, and several synopses or abstracts, the most valuable for the purposes of this work was the first, designated “Introdução” or Introduction, containing illustrated treatments of the physical aspects of Brazil, its geology, flora, and fauna, a description of the historical evolution of the Brazilian people, and a history of the census enumerations.

The second of the publications referred to above was published with official support in commemoration of the Brazilian Centennial, under the title,

“Diccionario Historico, Geographico e Ethnographico do Brasil,” Instituto Historico e Geographico Brasileiro, Rio de Janeiro, 1922.

This publication proved an almost inexhaustible fount of information on every phase of Brazilian development; political history, diplomatic history, administrative history, commercial history, juridical and ecclesiastical history, financial and economic history, in short, all of the important aspects of national life.

Other official and semi-official publications examined and employed in preparing the treatment of special phases of the national life of Brazil dealt with in this work will be mentioned in their proper place.

A very valuable reference work freely consulted was a briefer volume entitled,

“Compendio de Chorographia do Brasil,” by Mario da Veiga Cabral, 7th. edition, Rio de Janeiro, 1922.

This abridged chorography, prepared for use in the secondary schools of Brazil, is a most handy volume for the reader equipped with a knowledge of Portuguese, who seeks a preliminary acquaintance with the descriptive geography of the country.

For the discussion of the governmental system of Brazil, the author drew very largely on his own work entitled “The Constitutional System of Brazil,” published in 1923 by the Carnegie Institution of Washington, at Washington, D. C. Among the Brazilian works cited in that book, the most valuable for the foreigner seeking a first insight into the constitutional law of the country is, perhaps, the “Manual da Con-

stituição Brasileira," by Araujo Castro, 2nd. edition, Rio de Janeiro, 1922.

For the subjects treated in Chapters VII to XII inclusive of the present work, viz., natural resources, population, agriculture, industries, transportation, and foreign commerce, the main sources of information were the two publications described at the beginning of this bibliography, supplemented by various governmental reports, presidential messages and congressional reports, the last named being contained in the official publications known as the "Diario Official" and the "Diario do Congresso Nacional," published daily by the national government.

On the subject of the commerce of Brazil there is information available in English, especially in the recent publications of the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce, giving also some facts about other phases treated in the chapters referred to in the preceding paragraph.

For the reader unacquainted with the Portuguese language, mention might be made of a few recent books of a general descriptive character in English, generally containing some historical material, some statistics, and some travel impressions. Of those devoted wholly to Brazil the following may be singled out:

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This is probably the most informative as well as the most interesting of the more recent books on

Brazil available in English, though it is now, of course, considerably out of date.

“Brazil: Past, Present, and Future,” by J. C. Oak-enfull (London, 1919).

A very extensive compendium of facts about Brazil, both important and trivial, but suffering in usefulness from lack of effective organization. It contains the answers to more questions that will naturally occur to the foreign reader about Brazil, than perhaps any other volume in English, but they are not always easy to discover without reading through the entire work.

“North Brazil” and “South Brazil,” by E. C. Buley (New York, 1921 and 1922), are valuable hand-books of economic conditions.

“Brazil To-day and To-morrow,” by L. E. Elliot, (New York, 1917);

“The Brazilians and their Country,” by C. S. Cooper (New York, 1917);

“Brazil and the Brazilians,” by J. G. Bruce (London, 1915).

These three books are essentially journalistic in style and exhibit the merits and defects of that class of literary endeavor.

Finally it may be well to mention a few of the outstanding books which, though treating of Brazil only incidentally as a portion of a larger subject, contain something of interest or value. Among such works may be singled out:

“The Republics of Latin America,” by Herman G. James and Percy A. Martin, Rev. Ed. (New York, 1925);

- “South America; Observations and Impressions,”
by James Bryce (Rev. Ed., New York, 1920);
- “South America of To-day,” by Georges Clemenceau (New York, 1911);
- “The South American Republics,” by T. C. Dawson (New York, 1910);
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For current developments in Brazil the reader who wishes to keep abreast of the times should read the monthly Bulletin of the Pan American Union at Washington, D. C., though for obvious reasons he will not find there any discussion of political developments. The descriptive folders and pamphlets of the Pan American Union are kept fairly up-to-date also, and as regards commercial matters the Commerce Reports of the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce at Washington, give the latest information as well.

An interesting weekly published in English in Rio de Janeiro is the Brazilian American, popularly known as the “Brazam,” which publishes many articles and photographs, as well as statistics, not encountered elsewhere.

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